HIRD SERIES VOL 61 NUMBER 8

JUNE 1954

# THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

66 PORTLAND PLACE LONDON W1 . TWO SHILLINGS AND SIXPENCE



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# THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOLUME SIXTY-ONE NUMBER EIGHT 66 PORTLAND PLACE LONDON WI TELEPHONE: LANGHAM 5721-7

TWO SHILLINGS AND SIXPENCE
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# Birthday Honours

The whole profession will take pleasure and pride in the creation by H.M. the Queen as Knights Bachelor of our President, Howard Robertson, and of the Royal Gold Medallist for 1954, Arthur George Stephenson.

The Birthday Honours List has been published while we are going to press. A list of other members who have been awarded Honours will be published in the July JOURNAL.

### The Conference

Any who suffer from the delusion that the British Architects' Conference is predominantly a social affair are advised to read the 26 pages of technical information and discussion in this JOURNAL. It is true that Mr. Allen and Mr. Mills set a standard in their joint paper which future Conference lecturers will find difficulty in surpassing, but at the two fully-attended meetings there were discussions of sustained interest which the President had to close on account of time. And Mr. Allen, in his closing remarks, admitted that there were several technical subjects which had been no more than referred to.

Nevertheless, the social side was anything but devoid of attraction. The sun which, according to the President, had been guaranteed by the Mayor, shone during the enjoyable garden party in the grounds of Torre Abbey, and it shone again during the afternoon tours on the second day, showers falling conveniently only when the Conference was assembled indoors. Both the receptions, the informal one at which the hosts were the Devon and Cornwall Society of Architects and that given in the Town Hall by the Mayor and Corporation, were most enjoyable affairs, occasions for conversation and dancing and enlivened by cabarets. The Conference dinner followed the traditional pattern of public dinners in that wit is more welcome than wisdom, and there was plenty of the former.

Welcome visitors were Mr. John S. Stetson, representing the American Institute of Architects, and Mrs. Stetson; Mr. W. M. Bray, representing the Southern Californian Chapter of the A.I.A., and Mrs. Bray; and Mr. R. G. Montgomery and Mrs. Montgomery, also from the U.S.A. From 'down under' were Professor Leslie Wilkinson [F] of Sydney and Mr. S. W. T. Blythe [A], President of the Tasmanian Chapter of the R.A.I.A., and Mrs. Blythe.

The arrangements made by the Devon and Cornwall Society of Architects worked with clockwork efficiency. While it is invidious to single out individuals, we feel we ought to mention the contributions made by Mr. Edward Narracott [F], Chairman of the Conference Executive Committee, Mr. C. F. J. Thurley [L],

who was convenor of the exhibition committee and responsible for publicity, Mr. C. H. P. Pearn [A], convenor and honorary editor of the attractive conference handbook, and Mr. J. Ardern Powell [F] whose sub-committee arranged accommodation, and especially Mr. W. Martin Fleet, Hon. Secretary of the Devon and Cornwall Society of Architects. The Conference was specially fortunate in its charming official host, Mr. J. Vyvyan Salisbury [F], President of the Devon and Cornwall Society of Architects, who welcomed the guests at the Informal Reception and ably supported the President R.I.B.A. at the other functions.

The 1955 Conference is to be held at Harrogate from 22 to 25 June. The hosts will be the West Yorkshire Society of Architects. The B.R.S. Conference exhibit of materials and techniques

will be shown at the R.I.B.A. from 3 to 17 July.

### Architectural Association Council 1954-55

Officers and Council of The Architectural Association for the Session 1 June 1954 to 31 May 1955 are as follows: President: Peter Shepheard, B.Arch. (L'pool), A.M.T.P.I. [A]. Vice-Presidents: Bryan Westwood, A.A.Dipl. (Hons.) [F], and Gontran Goulden, T.D. [A]. Hon. Secretary: John Brandon-Jones, A.A.Dipl. [A]. Hon. Treasurer: D. Clarke Hall, A.A.Dipl. [F]. Hon. Editor: Prof. Basil Ward, Hon. A.R.C.A. [F]. Hon. Librarian: Miss Barbara Price, M.A. (Cantab.), A.A.Dipl. [A]. Ordinary Members of the Council: B. L. Adams, A.A.Dipl. (Hons.) [A]; J. M. Austin-Smith, M.C., T.D. [A]; H. T. Cadbury-Brown, A.A.Dipl. (Hons.) [F]; Sir Hugh Casson, M.A. (Cantab.), R.D.I. [F] (Past-President); Neville Conder, M.S.I.A., A.A.Dipl. (Hons.) [A]; Oliver J. Cox. A.A.Dipl. (Hons.) [A]; Alexander Gibson, A.A.Dipl. (Hons.) [F]; Edward Playne, D.S.C., A.A.Dipl. [F]; Graeme Shankland, M.A. (Cantab.), A.A.Dipl., A.M.T.P.I. [A].

### **Exhibition of Polish Architecture**

The exhibition, of which we gave a description and some illustrations in the May JOURNAL, was opened on 20 May by His Excellency the Polish Ambassador, M. Eugeniusz J. Milnikiel. The President introduced the Ambassador and welcomed the exhibition. The Ambassador, declaring the exhibition open, said the rehabilitation of Poland's historical monuments was an important part of the general work of reconstruction which was proceeding on a big scale.

# Library Group Annual General Meeting

Members are reminded that the Annual General Meeting of the Library Group is on Monday 28 June at 6 p.m.

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# R.I.B.A. Hospitals Conference on the Design of Health Buildings

As briefly mentioned in the last issue of the JOURNAL, a two-day Conference on the Design of Health Buildings is to be held at the Royal Institute on 21 and 22 October. The Conference is open to members of the Royal Institute who apply in advance for tickets. Tickets cost 10s. each, which includes morning coffee and tea on both days, programmes and advance copies of the Conference papers.

The following are the arrangements for the four sessions into which the Conference will be divided:

THURSDAY 21 OCTOBER 1954. Morning Session 10.30 a.m. President, R.I.B.A., in the Chair.

Opening Address by The Minister of Health, the Right Hon. Iain Macleod, M.P.

The Organisation of the Health Service in Relation to the Provision of Health Buildings: Sir John Charles, M.D., F.R.C.P., Chief Medical Officer, Ministry of Health.

Afternoon Session, 2.0 p.m. Mr. J. H. Forshaw, C.B., M.C., M.A., B.Arch. (L'pool), M.T.P.I. [F], in the Chair.

Papers dealing with the General Design Problems of the Hospital from the Architectural Point of View by: Mr. R. Llewelyn Davies, B.A. (Cantab.) [4], Director, Division for Architectural Studies, The Nuffield Foundation, and Mr. M. E. Molander, Director of the Central Hospital Planning Bureau, Sweden.

FRIDAY 22 OCTOBER 1954. Morning Session, 10.30 a.m. Mr. Maxwell C. Tebbitt, A.A.Dipl. [A], in the Chair.

A Paper dealing with the Hospital from the Nursing Point of View: Miss T. Turner of the Royal College of Nursing, Birmingham. A Paper dealing with the Hospital from the Medical Point of View: Mr. J. O. F. Davies, M.D., B.S., M.R.C.S., Senior Administrative Medical Officer, Oxford Regional Hospital Board. Afternoon Session, 2.0 p.m. Mr. Donald A. Goldfinch [F], in the Chair.

Mr. Goldfinch, Architect to the Birmingham Regional Hospital Board, will sum up the papers given during the previous sessions and there will be a general discussion.

It will greatly assist the organisation of the Conference if those members who wish to attend will apply for tickets as soon as possible. Cheques and postal orders should be made payable to the Secretary, R.I.B.A., and the envelopes marked 'Hospitals Conference' in the top left-hand corner.

## Housing Medals 1954

The 1954 awards of housing medals and diplomas offered by the Minister of Housing and Local Government for the best designed local authority housing estates in England and Wales completed up to 31 December 1953 have been announced. For the first time a diploma is being awarded to the builders of the winning schemes which were chosen from 338 entries, 44 more than in 1953.

The Minister is to present the medals and diplomas at the R.I.B.A. on 30 June and the winning schemes will be illustrated in the July JOURNAL. The awards are:—

Northern Area. Lakes U.D.C.; Greenbank, Ambleside; Jennings and Gill [L/A]. Builder, Norman Jackson, Kendal. Hexham R.D.C.; Newbrough, Nr. Hexham; W. Dixon & Son [A/LL]. Builders, J. H. Newman & Sons, Hexham.

East and West Ridings. Norton U.D.C.; Crown Grove Model Farm; F. Vaux [F]. Builders, F. & H. Calam, Malton. Nidderdale R.D.C.; Hampsthwaite; Needham, Thorp and White [FF/A]. Builder, Arthur Stephenson, Harrogate.

North Midland. No award.

Eastern. Harlow Development Corporation; Orchard Croft, Harlow; F. Gibberd, C.B.E. [F]. Builders, Kirk & Kirk Ltd. Dunmow R.D.C.; Weaverhead Close, Thaxted; G. A. C. Lacoste, M.B.E. [F]. Builders, T. Harris & Sons Ltd., Dunmow.

London. Southall B.C.; Bridge Hall; R. H. Uren [F] (Slater, Uren & Pike). Builders, General Housing Co. Ltd. London C.C.; Ackroydon, Wandsworth; J. L. Martin, Ph.D., M.A. [F], Architect to the Council. Builders, Tersons Ltd.

Southern. Swanage U.D.C.; Bell Street; A. E. Geens [F] (H. R. Collins and A. E. Geens). Builders, Jefferson Pond, Swanage, and J. H. Wilson & Sons Ltd., Parkstone. Kingsclere and Whitchurch R.D.C.; Inhurst; E. D. Chick and Powell and Moya [AA]. Builders, Holland & Hannen and Cubitts Ltd.

South-Western. Plymouth C.B.C.; Cecil Street; H. J. W. Stirling [A], City Architect. Builders, Hill & Lang, Plymouth. Bridgwater R.D.C.; Cannington; R. G. Nicholls [F]. Builders, H. W. Pollard & Sons Ltd., Bridgwater.

Midland. Coventry C.B.C.; Tile Hill, North; D. E. E. Gibson, C.B.E., M.A. [A], City Architect. Builders, George Wimpey & Co. Ltd. Shipston-on-Stour R.D.C.; Barton-on-the-Heath; E. H. Earp [L]. Builders, W. T. Hicks, Ltd., Hook Norton.

North-Western. The Charities of Mayes, Hartley and Sutton; Mayes Gardens, Ancoats; H. M. Fairhurst, M.A. [A]. Builders, William Gornall & Sons Ltd., Bolton. Tarvin R.D.C.; Clutton; T. Pritchard, Surveyor to the Council. Builders, Henry Jones & Sons, Holt.

South-Eastern. Crawley Development Corporation; Site I, Three Bridges; A. G. Sheppard Fidler, M.A. [F], Chief Architect to the Corporation (now City Architect, Birmingham). Builders, Carlton Contractors Ltd., Eltham. Battle R.D.C.; Trojans Plat, Winchelsea; A. H. Neave [F]. Builders, John Perigoe & Son, Rye. Wales. Beaumaris B.C. and Beaumaris Housing Assn.; Cae Bricks; S. C. Foulkes [F]. Builder, J. C. Evans Ltd., Birkenhead.

# Representation of Architects in Salaried Employment

Following on the enquiry sent to members, the Council are studying what further action may be taken. As a first step they have decided to hold exploratory discussions with the Association of Building Technicians without at this stage involving either side in any definite commitments. The A.B.T. have agreed to this step and representatives for these discussions have been appointed by each party.

# York Courses

The Course on Timberwork and Roof Repairs, organised by the York Institute of Architectural Study, which was announced in the April JOURNAL, is to be held at St. Mary's Hotel, York, from 13 to 18 September. It is intended for architects, surveyors, clerks of works and builders and will provide for a maximum of 21 members. A similar course on Public Park and Garden Design, intended for architects, town-planners, landscape architects and park superintendents, is to be held from 6 to 11 September.

Both courses are residential and the inclusive fee for each is 9 guineas plus a small charge for coach visits. Applications should be made not later than 16 August for the Timberwork Course and 9 August for the Gardens Course, enclosing a deposit of £2, to the Secretary, St. Anthony's Hall, York.

The Director of both courses is Dr. W. A. Singleton, M.A., B.Arch., F.S.A. [A].

### Repair of Ancient Buildings

In response to repeated requests the Society for the Protection of Ancient Buildings is again providing facilities for architects interested in and responsible for old buildings to obtain knowledge of its principles and methods of repair, and is arranging its annual Course consisting of lectures, discussions and visits.

It is hoped that local authorities and others will give facilities to the architect members of their staff. The Course will be held from 19 to 24 July. Details from the Secretary, The Society for the Protection of Ancient Buildings, 55 Great Ormond Street, W.C.I.

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# British Architects' Conference Torquay

# Inaugural Meeting at Torre Abbey, Torquay, Thursday 27 May 1954

The President in the Chair



The President and the Mayor of Torquay at the Garden Party at Torre Abbey

The Mayor of Torquay, Alderman Philip T. Read, M.B.E., welcomed the Conference to Torquay and said that he had recently read that architecture was 'the printing press of the ages'. He thought that this description of it explained the truly wonderful size of the Conference, the state of pre-eminence of the architectural profession and the value of the Royal Institute of British Architects, whose members were held in the highest respect throughout the land. It was fitting that members of a profession so ancient should be meeting in this ancient and lovely old building of Torre Abbey.

The Mayor added that he felt an especial interest in the Conference, in that he had been paid the honour of being appointed an Honorary Vice-President.

Mr. Howard Robertson, M.C., A.R.A., S.A.D.G., President R.I.B.A., thanked the Mayor on behalf of Conference members for his welcome, and delivered his Inaugural Address. He said:

It is only when we architects tear ourselves away from routine work that we can recover our sense of perspective. That is one great benefit of these annual conferences. Our meetings—formal and in-

formal—provide an invaluable opportunity for exchanges of views and experience. We may indeed discuss many questions which crop up at council and committee meetings at Portland Place. But we do it here in another atmosphere—one in which tension is relaxed and geniality prevails.

This year the conference theme is 'Materials and Techniques', presented in a truly remarkable paper by Mr. W. A. Allen and Mr. Edward D. Mills. This theme is, refreshingly, both architectural and practical. It is the kind of theme which can never be presented under routine council or committee business. And that is why I am personally so glad that the Conference deals with such progressive and interesting material instead of concentrating on the necessary but often tedious topics of administration or business which predominate in London and in the Allied Societies.

Our Council has had before it this year many vital questions. The latest to be publicised, and perhaps the most controversial, is the question of Trades Union representation for architects. This has had, and continues to be given, the most earnest consideration.

But let us not be unduly swayed by advice—sometimes pontifical, sometimes friendly, and sometimes menacing-from external sources, as to what action we should take. Some of this advice is illfounded, and some is contradictory and therefore cancels out. What we have always to keep before us is that the well-being of architects, and architecture, lies mainly in our skill and competence in performance. It is in public appreciation based on good performance that our future lies. Success in achieving the best possible working conditions and status is to be sought, but not at the expense of a whole-hearted and increasing attempt to improve both our architectural education and our performance in practice, so as to be fully worthy of our clients' confidence.

In other words, the eventual status of a profession depends upon the respect in which its members individually and collectively are held. There is no other road. And whatever political or social action the Institute decides to take, we must, I feel,

avoid at all costs any damage to the status of architects as men and women following an exacting calling in which none but the highest possible standards are admissible.

The respect in which architecture is evidently held in this genial part of the world is reflected today in the pleasantest possible way, by the welcome given to us by the Mayor and Corporation of Torquay, and the hospitality so graciously to be extended to us. We who are visitors may well feel that this pleasure is ours only because we have ambassadors at court in the shape of the Devon and Cornwall Society of Architects. Vyvyan Salisbury, the President, and Edward Narracott, his predecessor and Chairman of the Conference Committee, have clearly worked hard and successfully, with the help of Mr. Martin Fleet as Honorary Secretary, to ensure that the Mayor should feel us worthy of the great courtesy he is extending to us. And we are in the debt of the Mayor and Corporation not only for courtesy, but for the very tangible hospitality of the forthcoming garden party and the civic reception and dance.

If the Mayor will allow me, I would also like publicly to record our appreciation of the working contribution made by His Worship's secretary, Mr. Rooke.

May I, finally, tender grateful thanks to those who are providing hospitality on the Conference tours, and in particular to the Lord Mayor of the great City of Plymouth whose growing reconstruction is a matter of major architectural interest.

The friendship shown to us, the admirable programme available for our delectation, are a comforting augury for the success of this Conference and its personal enjoyment by us all.

Mr. J. Vyvyan Salisbury [F], President Devon and Cornwall Society, thanked the President for his Inaugural Address. He said, 'We particularly thank him for coming down here and ruling over us with his great spirit of goodwill and good cheer which we all enjoy so much. It does make such a difference when we feel that our President is enjoying something which is a duty.'



Mr. Vyvyan Salisbury [F], President of the Devon and Cornwall Society of Architects, and Mrs. Salisbury with, right and left, Mr. C. F. J. Thurley [L], in charge of Conference publicity, and Mrs. Thurley, at the Informal Reception





Left to right: Mr. C. D. Spragg, C.B.E., Secretary R.I.B.A.; Mr. Edward Narracott [F], Chairman of the Conference Executive Committee; Professor Leslie Wilkinson [F] of Sydney and Mr. L. F. Vanstone [L] at the Garden Party at Torre Abbey Left: Mr. G. D. Gordon Hake [F], Mr. Evelyn Freeth [A], the past and present Heads of the Royal West of England Academy School of Architecture, and Mrs. Hake



Mr. C. G. Stillman [F], County Architect, Middlesex County Council, and Mrs. Stillman at the Reception given by the Mayor and Corporation



At the Reception given by the Mayor and Corporation, Mr. Howard V. Lobb, C.B.E. [F], and Sir Percy Thomas, O.B.E., Past President and Royal Gold Medallist



At the Informal Reception. Left to right: Mr. J. Nelson Meredith [F], City Architect, Bristol; Mr. F. Napp [A], Deputy City Architect, Plymouth; Mr. R. J. Potter [F], President of the Wessex Federal Society of Architects.



Mr. Vyvyan Salisbury [F], President of the Devon and Cornwall Society of Architects, and the Mayoress of Torquay

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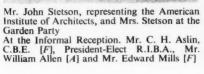
The two Cecil Howitts at the Garden Party. Left: Mr. Leonard Cecil Howitt [F], City Architect, Manchester. Right: Mr. T. Cecil Howitt [F], D.S.O., O.B.E., Nottingham

Edward mittee; one [L] ast and Archi-



At the Informal Reception. The President with, left, Mr. Thomas E. Scott, C.B.E. [F], Hon. Treasurer R.I.B.A., and Mr. Pembroke Wicks, C.B.E., Registrar of the Architects' Registration Council of the United Kingdom







The lecturers: Mr. Edward Mills [F] on the left and Mr. William Allen [A] discussing bricks and building blocks when introducing their joint paper



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# Materials and Techniques By W. A. Allen [A] and Edward D. Mills [F]

Read at the British Architects' Conference 1954

The President in the Chair

IT IS NOT possible in a single paper on building materials and techniques to do more than set the stage for discussion. This we have attempted by focusing attention upon what seem to us to be the significant trends and changes of today, hoping that the Conference will then by discussion sharpen the focus yet further and bring to bear the profession's practical experience to fill in many of the details of the picture.

We must say at the outset how we have limited our scope, for without some limitation we could rove almost endlessly over the field of architecture. The first circumscription we chose was to consider the materials and techniques of construction only; we have therefore excluded such matters as lighting, heating, and ventilation; they are regretted losses, but they are subjects too big on their own to bring in here. Then within the field of construction we have included only those aspects which seem significant for design, so that we have been led to omit, for instance, much of the modern mechanisation of building; but where mechanisation touches upon design, we in our turn touch upon it.

We have not, of course, limited ourselves only to new materials or techniques, for one of the significant points about building today is the way the conventional and the traditional are being appraised afresh and often re-fashioned to fit the modern world. We have omitted most of the new housing construction techniques, partly because housing is almost a subject on its own, but more because so much of the innovation there has been tied to particular plans and seemingly has little to contribute to the main stream of architecture.

As to the division of our residual subjectmatter, we have for convenience in discussion attempted a broad general distinction between materials and techniques. but they interplay so extensively that sometimes it has been difficult to draw a line and we must ask indulgence for the way it wanders from time to time. And then additionally there are some influential matters which cannot be separated in this way, such as the forces of nature in our climate, to which we have given pride of place in what now follows, because they underlie all successful use of materials and techniques. There are also some general remarks at the end about attitudes of mind, our training, our service from industry, and so on which bind the two sides once more

And thus, now, without more delay, let us turn to our task.

# PART I. THE FORCES OF NATURE

It has been difficult for us to acclimatise our modern design and construction to

conditions on these islands. Much of the trouble arose between the wars, for often what we tried to do then was inspired from abroad, or was new in some way, and did not have built into it, so to speak, the toughness needed here. There are climates harder than ours in particular respects, but conditions in Britain are in general perhaps as hard as any in the world for buildings, and in such a mild climate it is difficult to givefull weight to this apparent contradiction.

Fundamentally it is a question of moisture, for we have a persistently moist climate and moisture quickens chemical reactions and facilitates all manner of decay, and leads to all manner of dirtying and of changes of size. Even in the matter of frost we sometimes suffer more than we expect because of the likelihood of things freezing wet and then breaking instead of freezing dry, harmlessly. And so our buildings-and our architectural ideasare liable to quick deterioration if we import too indiscriminately and build too optimistically.

A classic example in one sense was the pre-war taste for smooth renderings, either because continental architects used them successfully, or to make buildings look as though they were made of concrete, which was another fashion of the day. One trouble was, of course, that we failed to import the technique of good rendering in the continental manner, soft surfaces not too inclined to shrink, and forgot also to add our traditional design precautions against dampness. Then, too, there was the peculiar stickiness of our atmospheric pollution, which made—and still makes—rendered surfaces especially look filthy when they looked well elsewhere. And finally, having used a rendering unable to absorb water. very liable to shrinkage cracking, and very much inclined to look dirty, we often put it over bricks full of sulphate salts just waiting for water to pass into solution, and the result-very naturally-was frequent and dismal or even catastrophic failures. It was an unhappy adventure, part of an unhappy period when technology in the industry and the profession did not rise to the needs of innovation.

One of the really difficult trends of the times is towards the use of impervious materials on walls. This gives us a two-fold problem; it is difficult to make a watertight joint between impermeable materials, and we are much more likely to have instead a good capillary path which will actively draw moisture along it, while at the same time we absorb no moisture on the building face so that there is plenty of water available to enter the joint. The principle is clear; we must use absorbent materials or have perfect jointing. Not



'We build wetly . . . '

only that but with impervious skins we must be prepared to collect the water at the bottom of the building. The run-off can be very heavy.

Defence against the attacks of moisture from the outside are not our only problems of wetness, for we have them in the structure as well. We make many of our building materials in dampness, we often deliver them in dampness, we store them on sites in dampness, and we build them into structures in wet weather, using a great deal of water to join them.

In a moist climate this is to some extent inevitable, and it follows that buildings will generally be very damp when they are new. Even nominally dry constructions only avoid the wetness of wet jointing materials; they cannot escape the atmospheric conditions. And so we must face the fact that we have relatively high moisture contents in our building materials when they are newly in place, and must accept the consequence that in the first year or two of a building's life many of the bits and pieces of which it is made will dry out and get smaller. This has always been true, but today it shows more than it has ever done, for we no longer think it abnormal to provide heating and most of our new buildings are properly warmed. Consequently we have much drier internal climates than we formerly had, as witness the fact that when we put a heating installation into an historic building the first complaint is that all the woodwork, which for perhaps hundreds of years has been perfectly satisfactory, suddenly cracks. But much more than our woodwork cracks these days, so we must try to think our way towards a technique of construction that fits the modern facts.

There is an example in the fundamentally unwise course of employing the aesthetic concept of the flat plane, simple surface when we try to make it by plastering (usually with shrinkable plasters) over a

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mixture of construction such as clinker block, brickwork and concrete framing, with perhaps an odd bit of wood framing and plasterboard. How can we expect anything but cracking? Every one of these things will pull away from its neighbour unless we are lucky, and our aesthetic objective will slip away out of reach.

It is the easy way, of course, this kind of 'plasticine thinking', but it is not good design. To finish right we must start right and think from the structure out to the surface, and from the surface back into the structure, so that the one registers the other properly, and the whole belongs harmoniously to the concept of the completed building.

Condensation is another of our moisture problems. Twenty years ago it was something that we thought was very often curable by better ventilation or by more heat, or both. The last five years have seen it raise its head in new and rather unpleasant forms which we cannot yet appraise very accurately in advance. It is due to several causes, some of which sound very odd at first hearing—better thermal insulation, less ventilation, more air-tightness, and more use of thin impervious claddings.

Let us look at these more closely. Better thermal insulation, for instance—why should it lead to condensation? The trouble here may be its misuse, for when it comes on the inner side of a surface on which moisture may condense it can prevent the surface from getting warmed by heat from inside the building, so that it gets colder and more certain to cause condensation.

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And what is this about ventilation? We have laid much stress since the war on not wasting the heat we produce, and we have worked towards better airtightness and discouraged needless air changes; now we still get some relatively high humidities which we do not dissipate by ventilation, and we get them into unventilated cold cavities, and of course the moisture must condense out. It is bound to.

And then there are these impervious claddings, cold when it is cold outside, and unabsorbent, mostly of glass or metal. They give no opportunity as bricks do, or even concrete to some extent, for moisture to hide harmlessly in the pores and evaporate later; it must all lie on the inner surface until it rolls downward in droplets. Sometimes we find materials like wood-wool or fibre-board attached to an impervious outer skin, and sometimes condensation does not then seem to happen on the skin, cold as it must often be. Why should this be? We presume the moisture then distributes itself in the interstices near the cold surface, hiding away as a high moisture content, somewhat as it does in brickwork, rather than as actual saturating condensate. Of course vapour barriers can give important help in controlling condensation, but the techniques are not yet before us fully developed.

The trouble is not that we do not understand the mechanisms, or cannot explain failures, but we cannot yet put numbers to the processes in ways which make prediction reliable. Both field and laboratory research are needed to clear matters up, and this will take some time; and so as architects we must presumably take refuge in some conservatism, or stick our necks out and learn from experience where the border lines lie. The point is then, let us learn corporatively, as a profession, by telling one another and the JOURNAL (if we dare) both of our successes and our failures.

There is a range of deeply important thermal problems in building design. It has, for instance, been very difficult for us to appreciate that a building, which looks so fixed and stable, is constantly in motion, changing its dimensions from hour to hour over a range which also varies from summer to winter. If no particular precautions are taken, the amount of movement will be of the order of 1 in. in 150 ft. as between summer high temperature and winter low. Unless it is minimised to a degree which will not ask too much of the elasticity of building elements, there will be cracking of walls and partitions and of the frame if this is concrete. Most of this will take place in the upper storeys where exposure is most severe, and if it takes place in the roof it may fracture the waterproof covering, especially if different parts of the structure next to one another expand at different rates and amounts.

The problem has become severe in our time because we have changed from relatively weak and discontinuous structures to strong and rigidly continuous types; and we use flat, continuous roofs where our fathers used discontinuous weak systems of tiles, metal sheet, and thatch. The latter tended to be foolproof, but the other is far from being so.

It is generally accepted now as part of our technique that we must provide expansion joints (and people who do not provide them generally get them provided in due course by nature); but this, of course, does not stop local troubles between expansion joints for which the only practical treatment is to keep the structure as near to air temperature as possible by such means as the use of light-coloured finishes for roofs to reflect solar heat and thermal insulation to protect the roof structure. Is it generally realised that the difference in surface temperature of asphalt, in sunlight, as between a white and natural dark finish will be anything up to 50 or 60° F., and that between summer and winter it will be over 100° F.?

One of the main points of a basically successful technique is, of course, to keep adjacent parts of the structure to much the same temperature, because contrasts mean differential movements and these lead to fractures. This suggests we must learn to be reasonably consistent in our reflectivities, not having adjacent things very dark and very light, or very different in thermal insulation. Our minds should focus especially on the junctions of walls and roofs—for those are the places most likely to trip us up.

Temperature differences we have always had, rigidly continuous structures we have not. That is what we must now recognise.

Pattern staining is another thermal

problem, not dangerous in its results, but thoroughly unpleasant in the way it spoils appearance. And it is an annoying cause of expense in the way it makes redecoration necessary so soon.

It is all due, of course, to differences in temperature on the surfaces of rooms, most obviously produced on outer walls and ceilings when the structure is such that heat flows away from a surface at different rates in different places; but it is also produced simply by the effects of different thermal capacity. For instance, the mortar joints in hollow block partitions will show up because they have a bigger thermal capacity than the main area of the block, so that one part holds heat longer than the other. But this is a slower effect. The plain fact is that on outer walls and in roofs, and to some extent elsewhere, we must not only avoid using constructions which have markedly different thermal conductivities, but should work generally towards substantially uniform insulations and masses.

These are not the sum total of the natural forces we must respect in working our way towards fundamentally sound building practice, but they include some of the main ones and are at least representative. And the point of all this is that we must work out our building practice so that success 'comes natural'. All history tells us this is the way to work as a general rule, and that as long as we butt our heads against barriers we will hurt ourselves. The forces of nature will win in the end, and we are better off letting them have their way or side-stepping them, rather than trying to defy them.

### PART II. MATERIALS

Now let us turn to the consideration of individual materials. There is no particular significance in the sequence in which they are discussed, except that the most widely established are considered first.

Bricks and other Clay Products. Some English clay brickwork is as lovely as any in the world, and bricks will no doubt continue to be used here in lovely or less lovely ways for a long time to come. But against them at present is some scarcity, sometimes high price, high labour content in laying, low thermal insulation, and an inability to meet certain aesthetic demands. We cannot look entirely to substitutes to relieve the difficulties, so we must seek what comfort we may with clay. There are several interesting lines of development.

Perforating bricks is an obvious possibility and is already extensively done in Germany, the U.S.A. and elsewhere. The perforations reduce thermal capacity and increase thermal insulation (potentially by some 300–400 per cent). By the same token they use less clay and can generally be fired more quickly, both because of this and because the holes permit penetration of the hot kiln gases into the units. The quicker throughput should lower kilning costs and can increase production, and the lighter weight is an asset in transport and handling. There is still something to be learned about the best form of perforation to use for

thermal insulation, but there is active continental research on this aspect, and the Building Research Station is doing all it can to induce British brickmakers to make perforated units. At least one-third of the industry, or some proportion of that order, can change apparently without undue difficulty. This is the kind of situation where architects can really help a great deal by formulating demands, for if they do not no one will, and industry may not move. Local authorities used sometimes to turn down perforated brickwork as too weak, but this is nonsense, as will be evident later when we discuss whole structures.

The use of pulverised fuel ash is another very interesting development. Our power stations produce this as waste from the coal burnt in making steam, and at present it amounts to about 2,000,000 tons per annum, enough to fill the Great Hall at Olympia once a month. In 1960 it will be twice this amount. At present it has a negative value and it is very desirable to find a use for it. At the Building Research Station a programme of work is in hand for the British Electricity Authority, and it is now clear that the ash can be used very well, in association with clay, to make bricks. And it could make a great many bricks, a thousand million a year at present.

One of the unexpected things about p.f.a. bricks is that they are very attractive as facers, tending to be medium or darkish reds and greys, indistinguishable from some of the best known makes. Good commons can be made too. The drying shrinkages in manufacture are very small, so that very fast drying and firing schedules are possible. This, together with the basic cheapness of the material, could, it would seem, apparently lower costs, and that lowering we must hope will be passed on to us.

While it is not always impracticable to take ash to the existing brickworks, the fact that in many cases it can usefully form at least as much as 85 per cent of the body of a brick suggests that the sensible thing to do is mainly to build brickworks at power stations, and bring the clay in if necessary. In other words, treat these brickworks as concomitant parts of power stations. The first experimental brickworks of this kind has just been authorised at Hoddesden, and the output will be used at Harlow. At some of the power stations under consideration, ash output could produce as many as one hundred million bricks per annum, and could thus greatly influence local supplies. The drying shrinkages are small, and this not only should encourage dimensional uniformity but opens up other possibilities such as the production of relatively large clay spandrel slabs. There should be a substantial demand for clay units of this kind for the facing of buildings, and the part they could play will become more evident when we discuss claddings.

There are regrettable aesthetic limitations in brickwork, in colour, texture and shape. In colour we have principally soft reds and red-greys, or soft yellows, which go greenygrey with time. These are not high enough in key, nor is the texture always right for

present design requirements, and they change under the weather. One of the interesting clay finishes in use in the U.S.A. is a glaze termed 'manganese spot', which is a spatter of dark brownish-grey on a whitish base, producing very fine looking greys, and the bricks themselves are remarkably uniform in size, partly owing to their clays, more to high-grade technical control in some of their works. Bricks of this type have been used in some of the new buildings at Harvard University which the authors have seen, and their trim preciseness, together with a recessed joint, decidedly has its attractions. And of course it washes clean, which can be very useful. In the same vein are some American yellow bricks often used for industrial buildings, for they are very hard and wash clean-a specially valuable attribute in industrial areas. Both these types of brick will be on display at the Conference.

Another most interesting brick development in the U.S.A., not yet cheap but certainly useful, is the pure-coloured glazes used by Saarinen at the General Motors Technical Centre in Detroit. These seem to be glazes applied after first manufacture (and presumably the twice-firing makes for the expense). The colours are magnificent, however, and could meet the oft-felt need here for pure, permanent colour outside our buildings, without going outside our traditional building techniques.

An interesting finish, mid-way between a glaze and the natural self-finish of the clay, is the terra sigillata of classical times that has been revived to a limited extent for special ware on the Continent. It consists in coating the unfired ware with a specially prepared suspension of the finest particles of the clay from which the ware is made. It gives a lustrous matt finish in a oncefired process and should therefore be cheaper than a twice-fired glazed product. Any surface intermediate between matt and glazed can be obtained by blending varying proportions of glaze with the clay suspension.

We are entitled to ask if the brick industry is interesting itself in meeting anything but traditional demands in appearance. We see few signs of it, and with the exception of some parts (including fletton production) not as much interest as we would like in aids to efficiency. Why do we see, for instance, so little interest in hollow clay blocks? On the Continent we find finely made blocks in vast quantities from the North Sea to the Mediterranean, and in the U.S.A. another range of accurate, ingenious blocks, self-finished with grey, ivory and other glazes, and in good proportions for external and internal presentation. Some of them are made with glazes on both faces, to form fair-face work both sides, most valuable for factories and other such building needs, and said to be a valuable time-saver in laying.

It is a little unfair, of course, to blame the industry entirely for their lack of innovation because as a profession we have not focused and voiced many demands beyond the traditional. Partly this is due to the fact that many of our own best innovators have been told to keep their hands off bricks since the war, to leave them for housing work, and partly no doubt it is due to the attitude which affected some of us at various times, when we came to regard the use of brick as a defeat, if not actually immoral and traitorous to the advance of modern architecture. But brickwork is still the sharp competitor on price in many parts of the country, as well as being the back. bone of the industry, and so we should perhaps invite the industry to explore with us these and other new possibilities.

The urge among us to find an extended range of brick colours and textures is still reflected in the way our professional eye roves hopefully over the field of sand-line and concrete bricks, finding often some thing that is more nearly to our taste, while we recall uneasily the problems of shrinkage which demand such careful specification. supervision and workmanship that we know we may fail to get any one of these and get a failure instead. But it is significant that we do not give up hope of finding something of what we want in these alternative types of bricks.

One of the substitutes for clays since the war has been the light-weight block, mainly either of foamed slag or clinker, both offering sufficient loadbearing capacity for inner leaf work in housing and improvements in thermal insulation, with reduced thermal capacity. Reluctance on the part of some architects and many local authorities to use them has now been so amply demonstrated in many cases to be nothing more than pointless prejudice and an unwillingness to examine evidence that one hopesperhaps idly-that there may be a more lively and understanding approach to new developments in the future. At the same time even this remark must be made with an eye to the fact that clinker supplies now are not so easily able to meet demands. and a risk of shortage is so evident for the future that the use of pulverised fuel ash is being developed to make sintered aggregates to take the place of clinker.

Even in the question of block production we have a disappointing comparison to make with the U.S.A. Few if any of our lightweight blocks are sufficiently well made to be left exposed to view, but in the U.S.A. this has become quite a regular practice, both internally and externally, the only finish usually being a cement-based paint, though emulsion paints and oil paints are sometimes used. The authors have seen them in factories, office blocks and housing, and they can be very successful and cheap. Yet it is almost impossible to rely on the British blockmaking industry to make a consistent block of the right texture, and deliver it without damaged edges. The worst of it is that we see no urge to solve these problems.

Stone. We all know that stone is generally more expensive than brickwork. The cost differential has been increasing steadily for

a long time and is now considerable. Yet stone is in many ways a very attractive facing and we want to keep it in our vocabulary not only as a material for the

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Slate canopy, Harlow (Yorke, Rosenberg and Mardall [FF]). The slab is stooled up at the back to keep out water and goes through the full depth of the wall acting as a lintel



Typical perforated bricks on an American site

expensive 'one-off' job but for more general use. What are the prospects?

Fundamentally, the competitive use of stone depends on improved quarry efficiency to lower the winning cost (which means investment in an uncertain future unless we can establish the market), on having a type of stone easy to work and accepting simple finishes, on avoiding ornamental shapes, and on simplified site work. Stonemasonry as a craft probably



Split York stone, Southlands College, Wimbledon (Yorke, Rosenberg and Mardall [FF]), held back by bronze cramps fixing each adjacent [Photo: Architect and Building News



Wood coverings for a concrete slab in Sweden

plays little part in all this, for the hand dressing of stone can consume a great deal of labour and that is what we must avoid. Probably it means either choosing varieties that can be prepared and used as thin cladding, which will be discussed with other claddings later, or using sawn blocks or hammer-dressed rubble as one leaf of a cavity wall.

The slate industry is a slightly special and saddening case. Slate is a lovely flooring material-there is a delightful area of it in the Festival Hall in front of the platform. It also makes a good entrance slab, and F. R. S. Yorke has used it charmingly for front-door canopies in low cost housing at Harlow. The Herts schools have it at the base of the outer walls, and there are good sills and other trim to be had. There is a feeling of enterprise here, yet the industry suffers the great economic disadvantage of the remoteness of the quarries, which

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adds to its direct transport costs and also makes it difficult to find economic outlets for quarry waste. It is a difficult problem, and as a profession we should consider how we may help.

There is little more one can say in a general way, except to add that if we want stone, we shall have to get together with the industry not only as individuals but as a profession. Perhaps the first step should be to bring both sides together in a symposium at the Institute.

Concrete. Reinforced concrete came into use in this country about half a century ago. Up to the end of the first world war it was treated as something to be done by specialist firms, and it was, on the whole, done well. It was seldom left exposed, however; most commonly it was rendered. Buildings built then, in that way, have survived well but generally look very drab.

Between the wars sharp changes took place; the specialist firms gave way to general usage by ordinary contractors (who reduced it on the site to labourers' work) and architects decided that here was new raw material for architecture, to be left exposed as a true expression of structure, and reduced in section to the most elegant dimensions possible. Quality of work seemingly went down, but the need for quality went up.

The result has been a very clear demonstration that in situ reinforced concrete, used like this, cannot be relied upon to have a trouble-free life of more than about 25 years. And although our climate is a contributor to its deterioration, similar results occur on the continent, where even in sheltered places, for instance on pilotis and the roofs they support, great spalls have begun to appear on buildings only

15 or 18 years old. The weak points in in situ work are the thinness of cover over the steel and the unreliability of workmanship. It is clear now that all steel-not just the main barsshould have a cover of probably 13 in., which will add to cost and often detract from elegance. And as for workmanship, the specification of mixes and watercontents alike are often senselessly ignored on many sites in the presumption that what looks right is likely to be good enough. If we are to use reinforced concrete really successfully in our grammar of contemporary design, then we must not only give the matter a great deal of thought ourselves, but insist upon the industry doing its part to raise standards quickly.

Even so, it is questionable whether we should leave in situ work exposed, and we would be wiser perhaps to plan generally to cover it, as for instance the Swedes do increasingly, often using wood or metal. Ceramic tiles might be another popular finish if one could be sure of adhesion but this raises a problem, as we will see later.

Some of us have trusted concrete too far in other directions. It is deceptively stable in appearance and tempts one to build up a sort of box-aesthetic where we depend on horizontal slabs staying horizontal; but we are sometimes nearer the truth if we think

of thin concrete slabs more as cloth stretched over supports and likely to sag. Some of the most interesting pre-war architecture in this country is unhappily suffering in this way. Another worrying feature of exposed reinforced concrete is its tendency to crack at every major change of section.

We should not leave in situ concrete work without mentioning the development of prefabricated reinforcement. It is somewhat of a mystery that we have waited so long for it. An interesting variant on this theme in the U.S.A. is reinforcement for floor slabs supplied welded to corrugated steel sheet which then forms a permanent shutter. It is all very quick and accurate, and specially well suited to situations where suspended ceilings are to be formed. Trends of this kind are bound to develop now.

A real advance here since the war has been in the precasting of concrete facing slabs, and this part of the industry is perhaps now as good as anywhere in the world. Products of good quality can be obtained and the finishes are often elegant. Crushed brick, crushed stone, and gravels have all been used exposed in ways which give an excellent appearance. Quality is not automatic, however; one must be ever watchful with concrete.

**Plaster.** Plaster is basically a cheap and versatile material, as old as building itself, but its versatility is not fully exploited yet, nor do we get trouble-free work, so we must stay for a moment to discuss it.

With wet plastering, no doubt the biggest change coming over the field is the introduction of vermiculite aggregates in place of sand. Vermiculite is relatively cheap, and a ready-mixed material by combining it with gypsum plaster is available.

Several functional merits are claimed for this development—reduced condensation, improved sound absorption, and so on—but the biggest legitimate claim is that it is easier to handle and therefore quicker to apply. If we really can get these economic benefits of easier working passed on to us and our clients, it will be a very satisfactory development. But we must keep our eyes open for troubles also.

Plasterboard as a plaster base is worrying some of us. Although shrinkage is said to be so small as to be almost harmless, it does not seem to be so in practice, and especially in the warm and dry buildings we are building now. Small but annoying cracks appear between boards or if some joints hold by scrim, larger cracks open between larger areas. Even nails seem sometimes to get left proud eventually and dislodge spalls of plaster. Is this general experience; and, if so, can the industry help us to cure our troubles? Perhaps the cause isn't always shrinkage.

One answer may be to use it without plaster. The main objection has always been that tape-covered joints look objectionable, but the type of board which is tapered towards the edge is said to be able to be used in such a way that no joint shows. The meeting edges are taped, and a special

plaster mix fills across the thinned area flush to the main face, apparently blending to the paper so well that decoration can be applied directly without, as we said, showing the junction. This kind of board has been available here for some time, but has not yet enjoyed the popularity which its counterpart in America seems to be having. It seems that there the jointing is often truly invisible when painted. The question is whether it will be so crack-free here, or shall we be defeated by indifference to good technology.

One of the really interesting post-war developments is the revival of the old stickand-rag, or fibrous precast plaster technique, and its harnessing to the needs of modern design, both in conventional and prefabricated construction. The Herts schools were in the van here, using it from the outset as a major interior finish for walls and stanchions, where its trueness-toshape has served them well. One of the spectacular examples in conventionallybuilt buildings is the range of ceilings in the main auditorium and lower foyers of the Royal Festival Hall. But many uses, from light fittings to stanchion casings, are now being developed. Obviously we have here a very useful addition to our grammar which we can nourish to our advantage.

A relative of this last family of plaster products is the prefabricated partition unit, each face being made as a plaster casting, with a honeycomb plaster or plaster-covered core. These are in extensive manufacture and, of course, serve a very useful purpose, for they give a finely finished surface, are easily handled and cut, and services can be inserted readily. Units from some factories have shown a tendency to be delivered warped, and this has to be watched. Sound insulation is not too good.

In the same vein are the plasterboard partition units, with two boards joined by a treated cardboard egg-crating. These are astonishingly strong, and could even be used for light roofing. Perhaps if they were made with tapered plasterboard they would be even more useful.

The prefabricated plaster ceiling is being pressed forward. Two types at least have been produced already, vermiculite plaster panels, and a gypsum panel perforated to let sound reach an incorporated absorbent. Multi-storey prefabricated buildings call for the development of cheap, prefabricated ceilings, sound-absorbent, simple to fix, and offering adequate fire resistance. Plaster is the obvious product to exploit, and with any luck this problem should be resolved before very long.

Surface finishes. The field of surface finishes is where most of the contemporary innovation in materials is to be found, partly because for the newcomer it is easier to enter profitably on a small scale than the field of basic products, partly because of the rapacious demands for novelty in decoration, and partly because modern technology seems to have opened the door to hopes of solving age-old technically difficult problems at less cost than former solutions. The range of novelty is now such that we

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Some surfacing materials which spring to mind are being developed mainly with a view to use as claddings. The authors have chosen to discuss these later in the section on claddings in the part of the paper devoted to techniques.

Paints. The paint world is changing. Linseed-oil-based paints are in a quick decline, being replaced either by linseed oil modified by resins, or by wholly resin-based types. As a class of product they tend to be more sensitive to poor workmanship than the older types of paint, but the finishes, especially the glosses, are so good that the trend is unlikely to be reversed. Troubles which do arise probably spring in the main from inadequate preparation of backgrounds, or other similarly unsuitable conditions. Unfortunately the contractor who knows the need for good preparation and includes for it in his estimating is likely to price himself out of jobs unless we look after this side of specification carefully.

The most obvious exception to this generalisation is the growing use of p.v. acetate emulsions in place of flat distempers, for these emulsions are rather less 'touchy'

than the things they replace.

Methods of application are changing too, of course. The outstanding innovation is the roller brush, both of the long- and short-pile varieties. Since these produce different kinds of finish, it seems we must learn which we want, and deliberately specify. Also we must note that in respect of practice the short-pile roller (e.g. mohair) tends to work paint more vigorously into a surface, while the long-pile (e.g. lambs' wool) is especially useful for rough surfaces. The real point is that they are not despised home-handicraft substitutes for long-hair brushes, but genuinely useful new tools. Incidentally they do really appear to save time; figures as high as 25 per cent and higher, up to 40 per cent, have been mentioned.

One point which the general commentator can fairly note is that too much design with sharp edges is asked to rely upon paint for protection. Windows (both wood and metal) are obvious examples. The fact is that wet paint tends to pull away from a sharp arris, and failure therefore tends to

begin here.

Cement glazes as a class include quite a variety of products. They are very hard, durable finishes, probably most fairly regarded as an alternative to tiling rather than to paint. They are commonly done by specialist firms who carry out the work with great care, but as so often, this then tends to become a quality product only, with a quality price. They make very good surfaces where standards of hygiene demand easily washed finishes capable of being kept clean in contaminating conditions. It seems a fair criticism of the work of some firms at least that they offer rather decidedly unpleasant colours and textures, and there is apparently and curiously a reluctance to provide plain colours and smooth finishes.



Button-embossed rubber flooring at Wokingham School (Ministry of Education Architects and Building Branch)

[Photo: Architect and Building News]

Perhaps they expect cracking of the backing and have learnt that their speckled finishes are good disguises.

A number of architects have used chlorinated rubber-based paints; it would be interesting to hear what the results are like, especially where it has been used on asbestos cement, for instance for roofs.

Glazed Tiles. Architects have been enjoying during the past few years a mild but not entirely untroubled flirtation with glazed tiles used externally. The range of colours is, of course, exciting and very tempting both for internal and external use.

Internally there is no particular difficulty that we know of except the tendency of tile-makers to let colouring be inconsistent. For some purposes we must have consistent colours, and since Americans seem to be able to get them in tiles, we should set our sights high lest we be defeated not by inherent difficulties but merely by poor

technology

Outdoors we have more of a problem, with all the usual natural forces, moisture and solar heat especially, working against us. In one building examined by the Research Station the light-coloured tiles stayed on but quite a few dark ones fell off. Some came away from the tile mortar, some came with it but without the backing, and some came with the backing and all, leaving only the solid concrete. The fact that they were dark seems to be the key to the problem, suggesting thermal stress as the starting point for trouble; the curious thing is that it should have caused failure in no less than three ways. It is in cases of this kind that we must consider whether we are asking an impracticably high standard of technology, or if the industry is giving too low a standard.

Floorings. The world of floorings is in a state of flux. Softwood is freely available once again, so that the struggle between it and thermoplastic tiles for the honour of the best low-cost house floor is on; purchase tax has been extended from the sheet forms of materials such as line to the tile forms; the floor specialist trades are changing, and new industries are entering the market in a big way.

So far as the struggle between softwood and thermoplastic tiles is concerned, it is difficult to say where the decision will finally lie. No doubt wood on suspended joists will have its protagonists, but complaint about its quality and proneness to leak cold air was widespread before the war, and we have had a great many reminders that the solid floor has its own merits, among which are the facts that it will not leak cold air, and that it is finished when it is laid and throws no secondary finishing cost on the householder. We can let the struggle proceed while we keep an eye on the quality of what we are asked to use.

An unhappy feature of purchase tax is its ability to influence design indirectly and arbitrarily. Most of us have watched, thoughtfully, as large rolls of lino or rubber bearing purchase tax were cut up into squares which were then tax free. The extension of the tax to tile forms smooths this out, but leaves the balance between these and other materials artificially fixed. One can only hope that the need for these controls can some day disappear—if only to let us see what the natural state of affairs would then be.

As an aside to the use of tile and parquet forms of flooring, have many people tried running the grain all in one direction instead of alternating it parquet-wise? A few examples seen suggest it has an unexpectedly

fine appearance.

'Big business' has contributed a new flooring, p.v.c. plastic, in both cut and sheet form. It is in its infancy and there are teething troubles which include some problems of adhesives; but it is a durable, very promising material, now well estab-

lished in the U.S.A.

On the face of it, rubber may seem to be pricing itself somewhat out of its pre-war place in the market, but one cannot pass it by without commenting on the embossed form of tile which the Ministry of Education architects developed and introduced at Wokingham. This has slightly raised buttons to give a firm grip and a constant appearance of cleanliness. Some of us who saw early samples and noted them with only mild interest were startled by its genuine loveliness at Wokingham, for added to the merits claimed for it was an unexpectedly good sense of soft texture on the big scale. Embossing is not a technique applicable to lino, which is calendered in manufacture, but presumably the p.v.c. makers could use it, and we might earnestly commend it to their attention.

The last development which we feel compelled to include is the Scandinavian introduction of thin hard woods, in small shapes (to reduce waste) fixed to low-grade backings and put down more or less in sheet forms. This kind of approach is often essential to sensible timber usage if one is to keep in balance with the natural ratio of high- to low-grade bulk timber growth, the low-grade being much the larger proportion. The floorings themselves are very presentable, well-behaved and competitive

in cost, class for class.

One general observation to note is the post-war growth of the specialist flooring firms who will lay not just one type, as was most often the case before the war, but a range of types. This is a healthy growth.

A firm which limits itself to one type is often tempted to use it in unsuitable places, just to keep trade going. When it can offer several, there is much less tendency for this to happen, and it helps to simplify the organisation of the industry.

All this is in the right direction, but it must be admitted that too much of the movement forward in the flooring field is in the wake of American development, and while this is so we cannot take an easy view

of how well we are served.

Sound Absorbents. The reluctance of architects and their clients to use sound absorbents extensively is one of the mysteries of modern building in this country, though there are signs of more activity now. It is difficult to say whether it is due to the high price of some of the absorbents which ought to be popular, or whether the high price is due to the limited market. Perhaps architects are just not attracted by some of the standard materials, and certainly it is odd that the one material most in evidence in the U.S.A. does not appear to be available here at all. This is a travertine-like tile, generally 12 in. square and made of plaster. Most often it is used as a suspended ceiling, the material being grooved accurately along the edges to fit on to a lightweight inverted 'T' framing. The result is a ceiling so perfectly jointed that many people think it is ground off in situ. It has a highly acceptable texture.

The remarkable thing about ceilings in the U.S.A. these days is the almost complete absence of ordinary flat ceilings plastered in situ. Sound absorbent systems, usually in 12 in. squares, have almost universally taken their place, except in domestic buildings. In a two-month visit to the U.S.A. one of the authors saw no flat plastered ceiling except in a house or flat. The suspended acoustic ceiling has a great deal to commend it; most of the services are hidden above it, and part or all of the lighting is housed here. High plastering costs may be a factor in the American trend.

With some difficulty we have introduced perforated hardboards, plasterboards, and so on, which originated in Scandinavia, for use as absorbents here, but one would judge off-hand that their biggest sale is for decoration in show cases and displays. As a material the uniform array of holes is often boring or even distressing viewed at close range. The Scandinavians long since introduced better patterns, especially with slots, but there seems no initiative in getting

these into the British market.

It is unquestionably a fact that the industry is not particularly enterprising in respect of design and development here; what is in more doubt is whether prices are really unreasonable for the size of the market, and if so, whether it is because of unenterprising architects who won't specify, or a lack of interest in a popular market by the suppliers. But we should get these things moving; far too many rooms are spoilt by lack of absorbents.

There are illogicalities to be seen in the arrangement of this discussion; for instance, floorings and sound absorbents have been treated as surface finishes, while ceilings and partitions were discussed under the heading 'plaster'. It cannot be helped, for it seemed the only sensible way to tie things together without repetition.

We are conscious of so many omissions in the list of newer materials, and even among the old there is no mention of timber, which comes later under 'techniques'. We must look to the Conference to bring into the picture anything which seems significant but which has received no mention.

# PART III. TECHNIQUES

Turning now to discuss techniques, we find ourselves in a quickening world, not yet so lively and buoyant in innovation as we hope to see it, but moving forward decidedly in a way which promises well.

Does this note of optimism seem unwarranted? Perhaps it is a little surprising; but then so many of us may have a reason burgh, to be surprised. There were, for instance on a ne all those who felt sure, perhaps a trifle cynically, that all would be as it was after is perha the first world war, with a return to 'normalcy' as soon as the need for 'subpressed by a te stitutes' disappeared. They are surely giving wrong this time. Then there were the Appare legions among us who saw a vision of that an new materials and techniques in a bravely perman this wi technical post-war world; by about 1948 not so this began to seem like a mirage, for there was not much of the brave new building cost o schools world to be seen, and some of this discouragement has persisted. And of course finished there are the honoured amongst us who put their heart and soul into breaking the new problems properly, studying the background and creating the foreground knowing that changes generally do not happen spontaneously but take time and hard work. If they are surprised at our feeling of optimism, perhaps they are too near the battle to see how well it is going.

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The fact is that a real revolution in building is under way this time, partly due to architects, partly to the industry's new interest in better management and organisation, partly due to research and partly to the growing rapport between all three. It is gathering momentum and will

not stop now.

In what follows, we have made only the one broad division as between the external skins-i.e. the claddings-and general constructional systems. This seemed the best way to carry the complex material for discussion.

Claddings: We are discussing cladding first because in this division we are to some extent merely resuming our discussion of surface finishes, the border line between the two being indistinct in many places.

The term 'claddings' is of course so wide that it can be used to embrace all outer wallings and roofings, but by common consent it appears now to mean generally the kinds of outer skins which are prefabricated in some degree or are very light in construction. It includes the simple skins which cover the frames of shed-type buildings, and curtain walls, and panel infillings, and lightweight roofing systems.

The problem of the day in cladding is to find tough, inexpensive, durable, colourful sheet materials. Some of the attempts an very interesting. There is for instance the fibreglass reinforced plastic sheet which is translucent and very tough. It is still new and not yet fully appraised. It might have considerable contribution to make to factory construction, for its toughness and translucency both have merits for factories which are not yet possessed by asbestos cement, for instance, and presumably i will resist corrosion quite well.

Aluminium is of course already in this field and most of its properties are too well known to need attention here. It is most familiar in the form of corrugated sheeting of some kind, but in America it is being pressed as panels (about 1 in. thick) for curtain walling. Naturally enough it was used on the Alcoa Building in Pitts-

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reason burgh, and lately Emery Roth has used it on a new office building in New York. stance,

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The problem of a finish for aluminium is perhaps the outstanding difficulty. The is after pressed panels just mentioned were finished by a technique similar to our anodising, giving a matt surface, generally greyish. surely Apparently the Alcoa Company maintain re the that anodising can give a range of colours permanent for exterior use, but whether this will prove so in practice is perhaps not so relevant at the moment as the high cost of the treatment. The aluminium schools in this country have generally been finished by painting with a special treatment.

The fact that a good range of permanent ng the colours is not yet in sight for any of the established sheet materials forces one to look at vitreous enamelling. As it has been round produced thus far in Britain it is expensive and to some extent fragile. Now the prospect is brightening, because at least one firm has developed a technique of putting on to metal a single coating not unlike a vitreous material in its general character and durability, and at a relatively moderate price. The sheet is dipped and fired so that both sides are coated and finished simultaneously. The coating is said to fuse into the metal surface, and appears to be very tough as well as resistant to corrosion. In fact it seems likely to make sheet steel a long-life, moderate-cost, low-maintenance material for the first time. If prices, production, colours and quality come out as anticipated, we may have here one of the materials for which we have been searching for a long time. It would have numerous uses of course as corrugated sheet and as panelling material for curtain walls, and no doubt in many other places where permanent colour is wanted outside. For example, a decidedly exciting sort of factory suddenly springs into vision, clad in these gay,

washable colours, both inside and out. Asbestos cement has a traditionally strong place in this market of claddings. It is cheap, easily moulded, resists corrosion, and can be formed in large sizes. One would say that basically it ought to meet a large number of architectural needs. Unfortunately it is brittle in some forms, and at present its only colour is apparently a whitish or middle-grey. No particular attempt has been evident on the industry's part to overcome these disadvantages, especially of colour, or to seek improvements in the shapes and other architectural qualities of asbestos cement, or even to meet the reasonable desires of architects to take advantage of the mouldability of the material in the way of special shapes. In fact architects complain of a 'take it or leave it' attitude on the part of the industry. If this is so, what can we do to stimulate the industry to exploit more adequately the possibilities of this material?

Of plastics there is very little new to say. We know they are expensive in large sheet forms, and that the only considerable use they have found is in such buildings as the schools in Herts and Kent, where ingenuity and the strictest economy in fixing methods Pitts were able to compensate sufficiently for other costs to bring the material into the picture. Its weathering properties seem not to be too bad after five years' experience, but one wonders why the gloss finish is so assiduously sought by makers, when matt finishes would so often seem to be preferred by architects.

Glass, though as old as the hills, still needs a mention in this context. For one thing, it is now relatively very cheap, having gone up far less than other materials since the war, and therefore it makes the curtain wall of glass a more attractive economic prospect than it formerly was. We will come back to this later.

As for new types of glass, perhaps the main developments have been the increasing use of anti-sun glass in the U.S.A., the development of double glazing, andon the horizon-stove-enamelled glass.

This greenish anti-sun glass which Americans use extensively to reduce solar heat gain and sky-glare is an interesting development, more familiar here on recent American motor cars than in buildings. It gives a curiously aquarium-like appearance to glass-faced buildings such as the Lever Building as seen from the outside, but is unquestionably a great comfort to occupants. Architecturally it calls urgently for some pure colours outside to offset the uniform greenishness, for despite all the talk about sky reflections and so on, a street of Lever buildings would be very monotonous. It is perhaps doubtful if the glass will find extensive use here; it is expensive, and the need is not so very great unless one is using cooling plant, in which case it helps to reduce cooling load and therefore plant costs. British architects may find themselves using it abroad, and then they should acquaint themselves thoroughly with its tricks.

Double glazing is only slowly and painfully finding a place in our work. The twin-pane proprietary systems are generally satisfactory and fool-proof, but their cost tempts architects to seek non-proprietary ways of double glazing, usually either by a separate parasite frame carried by the main frame, or by leaving one pane removable, for instance by fixing screwed glazing beads. Experience of these has not yet been collected but there have been some successes and no doubt some failures. Removal for cleaning every few years—perhaps at three- or four-year intervals-seems likely to be necessary with any system not absolutely sealed.

Stove-enamelled glass is apparently being considered for production, and this would obviously be a valuable addition to the terribly small range of permanently coloured, colourful claddings. One of the twin-pane producers now markets a sandwich with a paint coat, reinforced by glass fibre, on an inner surface, and in the sheltered conditions of the air-tight cavity, with carefully chosen paints and pigments, it seems possible that it will last very well. This sort of development makes one wish to be able to foretell the future; but artificial weathering tests would be an acceptable substitute.

And finally timber, for this is beginning

to play a considerable part in claddings, especially on low buildings where its beauty can be registered at close range. African hardwoods and western red cedar and several other woods are now being used extensively on school buildings, generally in vertical strip arrangements, and appear to be in the right cost range, though some seem dearer than they ought to be.

This seems to cover the main groups of materials serving as outer skins in cladding systems, though no doubt it omits a great many individually interesting products. Now we must move on to consider what

holds such materials in place.

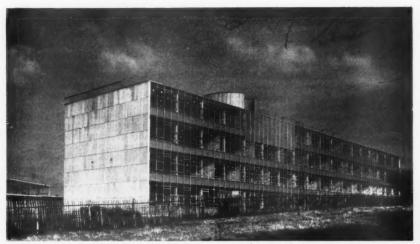
Curtain walling systems have been intro-duced by several British firms lately and at the present rate of development we should be quite nicely served in two or three years' time. One system uses deep, thin box mullions and transoms of aluminium, organised to receive glass direct or in opening lights, or thick composite panels. This frame is simply bolted to the main structure. Then there is a system of patent glazing bars used both as horizontals and verticals, organised to carry glass as the weatherproof skin, with panel infillings for colour and thermal insulation supported on the back side. The former system is just now coming into use and the latter has been used on a number of jobs already. A third system, in galvanised steel flats with aluminium capping sections, forms a very adaptable grid capable of taking glazing and panel infillings of various kinds, and this again is just coming into use here, though it seems at least one job was done with it in the U.S.A. some time

The development of these metal proprietary systems makes one ask if wood is not practicable. The answer is seen in the very nice example of softwood timber framing at Harvard University which we are illustrating. It is nothing more nor less than a very large window with clear and coloured glass fixed directly into it. On examination by one of the authors no leakage or other trouble could be detected. The relative costs will be worth examining.

Americans have special experience of curtain walls for high buildings which we do not yet possess. Presumably it is something we will have to acquire in connection with some of the new office buildings now being planned over here. Their external coverings for mullions are generally aluminium or stainless steel and their main cladding skins are glass or pressed aluminium.

The United Nations Building was the test ground for modern American curtain walling, and its designers took a courageous, tremendous stride in design, which has unfortunately suffered some difficulties which we must all hope are now overcome.

The building stands, of course, much exposed to high winds and driving rains, and the skin being entirely of glass and unabsorbent, the conditions are specially severe-though no more severe than any building here should have to stand. The factor which seems to have been unexpected is that some of the air forced against



Curtain walling by Hill's patent glazing bar system. Lewisham (Prendergast) School, L.C.C. Architect to the Council, Dr. J. L. Martin [F]

the building travels or is sucked upward, carrying with it water which enters into various weep holes, drips, etc., designed for drainage on the normal assumption of downward flow. It has been necessary to carry out extensive remedial measures to seal vulnerable points and joints, which it is now hoped have cured the troubles. It remains the case, however, that in these high, exposed structures we must apparently face the need for virtually completely weather-tight construction if we are going to use non-absorbent curtain walls. It is the difference in absorption between this and conventional materials which creates the special difficulties.

In this connection one is then bound to ask whether our mastics and putties are going to meet the demands made upon them. Certainly they are likely to prove vulnerable unless protected. Mr. Lloyd Wright's brave use of glass tubes on the Johnson Building has demonstrated this. But even protected by beadings and cover strips it seems we must view our dependence on it with a very cautious eye.

Apart from the tendency of the material to harden, there is the particular problem that it is supposed to adhere to things in constant relative movement. Glass, when it gets warm and cold, expands and contracts. If it is clear glass the movement is small, because the temperature change is not so great. But we now ask for anti-sun glass, or glass coloured to give colourful panels, and we locate thermal insulation behind, and all these increase the temperature range in the glass and consequently the amount of movement. We know this is so because one of the difficulties we are facing here today (and this happened in the Lever Building too) is that such glass panels require exceptional glazing tolerances, and unless these are meticulously observed the result is cracked glass. It seems then optimistic beyond reason to expect putties to adhere in a watertight way when such movements are going on, and to continue to adhere for, say, 15, 20 or 30 years.

Curiously enough, Americans do not

have the equivalent of our patent glazing bar, in which one relies on drainage rather than putty, but this seems obviously the more promising solution. Can we in fact be shown some mastic that is plastic after, say, ten years?

One logical precaution to take, and one which is desirable on other grounds, is to provide a cleaning gantry, along the lines of the one on the Lever Building. It greatly simplifies cleaning, and it also makes the building face accessible for repairs. It should be a standard provision; but an interesting problem arises; on a high building, should it not be tracked down the face of the building? Would one like to have a cradle at the end of 150 ft. of rope without some arrangement to steady it?

The most difficult problems arise in connection with the spandrel panels rather than with the clear glass. Early in this paper we spoke of condensation and thermal insulation, and described how these two interplay. Numerous attempts are being made today to produce sandwich panels or spandrels which combine thermal insulation, fire resistance, a colour face, and an impervious outer skin, often of glass, without being prone to condensation troubles. Saarinen at the General Motors Technical Centre brought into being very elegant panels with stove-enamelled facings inside and out and a thermal insulating core, and other solutions are coming forward both in the U.S.A. and here.

They have the special difficulty that not only must they keep water out of the building, but out of the core or backing also, which is generally awkward to water-proof at the edge cheaply. Some of Saarinen's panels suffered a misfortune in this way, for the cores got saturated. It is at least open to question whether it is not better to dissociate the weather skin from the thermal insulation by mounting the latter separately behind. It seems almost certain to be so, as a general principle of design.

Saarinen has introduced another new approach by using an extruded rubber



'Difficulties with mastics . . .' Modifications being carried out on the Johnson Wax Building U.S.A.

section to connect the mullions and the panels. This is a well-established motor-car technique, and there it certainly stands up surprisingly well; but the life of a car and a building are so different that one hesitates to argue from one to the other in the case of a material of this kind, for a purpose as vital as this. Can rubber in sunlight be expected to last more than ten years?

We have no more than mentioned fire up to now but it often is a major factor in curtain walling, especially in urban areas where one major purpose of fire codes is to prevent the spread of fire, both by containing it in the source building and by excluding it from neighbouring buildings. Generally speaking, the proportion of window on the façade of a building has been restricted, and the remaining areas have to meet requirements for incombustibility (a limitation on the risk of flame-spread), and a fire-resistance standard of one or two or more hours.

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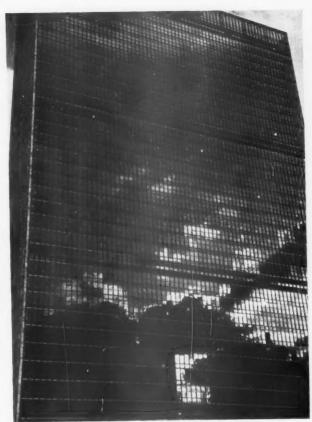
No doubt these requirements not only serve their intended purpose fairly well, but mitigate danger and unpleasantness in fire-fighting. Nevertheless, they can still be needlessly restrictive. This greatly hampers development, and when innovating, the only way to tackle this is to get a thorough grasp of the technology and insist on going to the root of the requirement and getting a decision based then on sound reasoning from first principles.

For example, one may find bye-laws framed for urban buildings in relatively narrow streets applied to buildings facing open squares, or applied to flats on estates where there is adequate space between buildings to make fire spread nearly impossible. This is the time really to begin an argument.

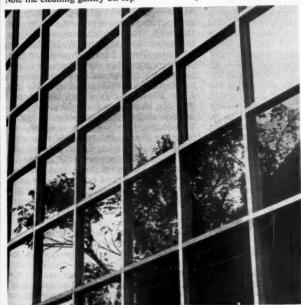
One is always tempted to think that if a wall is perforated by windows anyway it might as well be entirely window or without fire resistance, for all the good that fire



The Lever Building, New York. An outstanding curtain wall design. Note the cleaning gantry on top



The great experiment in curtain walling, the U.N. Building



Detail of curtain walling on right. The framing is softwood

resistance will do on the remainder of the wall. That is a problem that many of us have to face, but it can be successfully dealt with and though we cannot go into it in detail, the new Scottish bye-laws have covered it in a most adequate manner by



Curtain walling at Harvard University, U.S.A.

including a clause covering buildings that are deemed not to have an external wall.

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claddings, and recollecting also the remarks about condensation at the beginning of the paper, we can see that curtain walling is technically difficult. We use waterproof materials instead of absorbent ones, and we thus bring ourselves up against formidable jointing difficulties. We ask for durable, tough, coloured surfaces. We want some thermal insulation and we cannot afford to have condensation. We are obliged to provide some fire resistance; and we are not allowed to forget that conventional cavity walls cost only about 5s. per ft. super.

One is almost inclined to ask why it is worth trying. A goodly part of the answer lies in the fact that it seems a logical architectural device, and if we believe it to be so, then we must simply settle down to work it out properly. If the economics look difficult let us recall some compensations: light things are cheaper to lift than heavy ones, and lifting things is quite an item in building costs; lightness and prefabrication can mean quickness (the aluminium cladding on Roth's building in New York was placed in 61 days) and speed is itself worth money; light walls also mean lighter supporting structures, sometimes for instance with the omission of perimeter beams; and finally lighter structures mean reduced foundation costs. In a matter such as building construction, where true costs per element are difficult or impossible to establish, and novelty has such illogical consequences, it is usually better to stick to the logic and have faith than to accept too readily a superficially discouraging picture.

At the same time we have something to learn about the handling of curtain walling in the purely design sense, for problems such as scale, pattern and texture will raise themselves quite formidably. For instance, one example seen of the glazing-bar curtain walling seemed to suggest that its smooth uniformity calls for big-scale modelling of the structure. On the other hand, the timber frame at Harvard, with its regular shadow-pattern, could obviously provide its own interest in detail without quite such a demand for major-scale interest. All this will play its part in development, urged forward by the knowledge that brickwork in cities is slow, dark and dirt-collecting, and stone, which almost alone among traditional materials can give brightness, is expensive.

There is a special and important sector of the curtain-wall problem that is rapidly developing here in Britain. We have a great many cases in school construction, and an increasing number in flats, where we can use a prefabricated panel to fill in an entire bay of the frame, so that it forms the outer wall, but does not travel across the frame like a true curtain wall. In prefabrication systems it is an obviously sound approach. In conventionally built buildings it is probably equally sound but perhaps is less obvious as an answer because there we have such a persistent tradition of brickwork walling, and a greater problem of tolerances.

The argument emerges most readily

from the use of cross-wall construction. We will be saying more about this later, but we can take it here that it is economically attractive and can be made more so by getting rid of the need for foundations under the outer walls (only the cross-walls take loads). Thus one is confronted by the idea of avoiding weight in the outer wall by the use of panel inserts, and having got that far one discovers that it is possible to dispense with the perimeter beams too if the floors can take the light panels. Then one brings to bear the point about the reduced weight to be lifted, and the possibility of reducing or avoiding scaffolding, and the whole pattern begins to make sense. Add to this the freedom from institutional appearance you can achieve for purposes like flats, for instance, and it acquires great attractiveness.

Actually, the panels themselves can probably be cheaper than if they are whole curtain walls, but this partly depends on other factors, especially the use of balconies. The point about these is that they can somewhat mitigate the weathering problems, reduce the fire risk, and simplify access for maintenance. They reduce the fire risk by interposing an incombustible element between neighbouring panels, and whether this is in the plane of the wall or projecting is of less consequence than its mere presence. Probably it is more effective if it projects. In these circumstances it even becomes practicable to consider wood frames in place of metal, and possibly combustible facings, and certainly linings such as plaster-board, all of which help to make the cost competitive.

Although panels do not seem to have been used much for no-fines concrete buildings yet, the case is perhaps stronger here than anywhere. No-fines concrete is now being used here up to six storeys, and up to nearly 20 in Germany, so it is growing in importance, but the only finish that seems to be considered is rendering.

Now we have not discussed renderings in this paper and this was deliberate. They seem to us so often unsuited to the British climate, except perhaps for small domestic property. Our dirt is aggressively sticky, and renderings, which tend to be dull to start with, seldom look anything but dirty and grim after a few years, often even in rural areas. There is a high-grade continental type scraped rendering which has had 17 years' exposure at the Building Research Station (which is in a rural area), and it has not only lost much of its initially good appearance, but it would be difficult to recover. Others look almost as bad and often worse, and all of them are sensitive to disfigurement by cracking. It seems very reasonable therefore to consider seriously the extensive use of panel infillings with no-fines concrete construction.

We approach the end of this long subject of claddings with a passing mention of some heavier wall finishes and one increasingly popular roof construction.

One struggling idea in the heavy cladding class is the surfacing of structural concrete or brickwork with thin sawn stone or precast concrete. Sometimes it works and

sometimes not. There is certainly one common point to look out for-this usual question of absorption. Well-made concrete finishes can be relatively unabsorbent joints, on the other hand, will often invite water to enter by capillary action through the cracks that usually form. The non-absorbent slab leaves plenty of water available for the joints to take up, and they draw it into the interspace between slabs and structural wall where it may weep out through lower joints down the face of the building or find cracks through to the internal finish. We must remember once again that the impermeable unit demands the perfect joint, and the latter is harder to obtain than the former. There is much to be said then for the rather absorbent stone face; it reduces the free water left to attack the joints, and makes the joints themselves safer by absorption along them.

This is not to decry the excellent development of concrete surface finishes since the war. The Cement and Concrete Association and to some extent the Building Research Station and several individual enterprise have pushed this work forward actively and we now have an industry able to tum out good quality highly attractive precas concrete units at competitive prices. Parly this has been due to the developers of systems for schools, who have made extensive use of stone aggregate finishes on slabs. We seem now at long last to be moving out of the era of the artificial stones which were so prone to crazing. We are not entirely out yet, however.

In the pre-casting field some of the effort has been put into developing slabs combining concrete faces with insulated backings of wood wool or a special concrete ready to receive a finish nailed in place. These mainly belong to proprietary prefabrication systems at present, but obviously the idea has more general uses providing that the economics are right. Wokingham and Coventry (Broad Lane) Schools have them.

We mentioned in our discussion of clays the fact that pulverised fuel ash and clay combinations might make possible relatively large flat clay sheets, and these, if they can be produced, would seem to have a very useful place as spandrel panels. Presumably they could be colourful and relatively cheap, and certainly they would have the toughness, fire resistance, durability and other properties of the 'perfect' cladding, excepting only that they are heavy. But they need not be so very heavy, and some constructions will be able to carry the weight without embarrassment.

The only new roofing system which seems to fall within the accepted idea of a cladding, which is not part of a proprietary system, is based on the use of wood-wood slabs. It is not really 'new', of course, but it is so in the sense that it has steadily gained ground since the war. There are good reasons. It is basically competitive in cost, has sufficient strength to do reasonable spans, offers thermal insulation and sound absorption at the same time, can be cut and chased readily.

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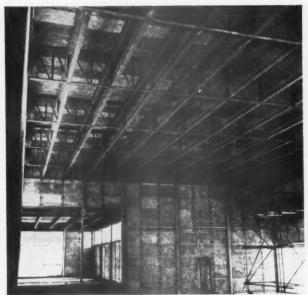
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Face of precast concrete walling units with nailable concrete on the back



The back of the walling units shown on the left, lined with Hill's frame at Wokingham S.M. School by the Ministry of Education Architects and Building Branch

makes a good plaster-base, and so on. As a rule it is covered with a screed of from ½ in. to 1½ in. as a base for a bitumen felt roof or asphalt.

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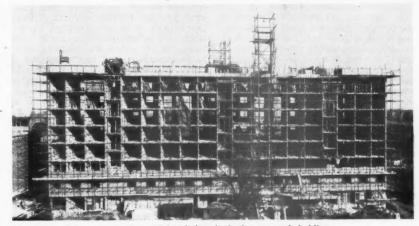
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The one point which has to be watched for-and this is not a point about woodwool roofs alone but about all roofs incorporating good thermal insulationis that if solar heat absorbed by the roof is not able to be dissipated into the building, the screed and water-proofing tend to get exceptionally hot, for roof temperatures can reach 140° F, or more in summer sunshine here, and far more than this abroad. Moisture and moist air are almost always with us in British buildings, and will be present in the wood-wool, in the screed and between the layers of felt when these are fixed in place. The effect of heat upon any trapped body of air is to raise both air and vapour pressures so that felts tend to lift, blister and de-laminate, often in long ridges which the Americans call 'crocodiling'. The combined air and vapour pressures are surprisingly high, of the order of two, three or more lb./sq. in., so you will see they are not to be lightly dismissed.

This is a reminder that we should keep roofs cool, and the greater the thermal insulation below the water-proofing, the greater the need to reflect solar heat. We have said a trifle about this already, but it gives us a particular reason for saying here that what we want and urgently need from the roofing felt trade are felts with really pale-coloured and white grit finishes. The fact is that far too many roofing felts seem to be giving trouble, and although their darkness is not likely to be the only cause, it can hardly fail to be quite a contributor. Bad workmanship can of course introduce trouble too, but this is a separate issue; let us get the felts first.



Typical box frame construction with its obvious invitation to panel cladding

[Photo: Ove Arup & Partners

Thus we come to the end of our discussion on claddings, with a fresh realisation of the major part they play in our picture of building technique, and an impression of the formidable technology which has to be incorporated in them to put us in command of the exteriors of our buildings. Particularly do we face the difficulty of using unabsorbent skins which demand perfect joints but increase the difficulty of forming them.

Whole Systems of Construction. So much capital is involved in building whole structures that one would not expect many new techniques to be evolved, but the profession and the industry are—relatively speaking—coming alive with ideas, and a surprising number are finding places for themselves. In what follows we discuss site

fabrication methods and prefabrication together. It is increasingly illogical to separate them, for the two are blending rapidly.

We will begin with something which in itself is not very exciting architecturally but concerns large numbers of us, and that is the use of conventional load-bearing construction beyond what has usually been taken to be its limits. At its simplest this is merely the thrusting upward of cavity walling to three, perhaps four storeys. It is being done here now, but some of the work that one sees vigorously emphasises the increasing need for good workmanship as one puts more than normal house loads on to the construction. In fact you move out of the 'traditional' approach into the engineering field as you extend the use of this simple, cavity construction. However, the fact that it all lies



within the familiar domestic range of materials and methods suggests that it is likely to be reasonable in cost.

In Germany and no doubt elsewhere on the continent they are going four storeys and more in good rubble-concrete block construction about the same thickness as our 11 in. work, but you find them using a better grade of block in the lower storeys, and a good class of workmanship everywhere, and a fairly general use of concrete floors which help to stabilise the structure.

More interesting are some of the modern uses of improved single thickness brick-work in France, Switzerland and other continental countries. On one French example the bricks are large, 25 cm. by 25 cm. by 12 cm. (i.e. about 9 in. by 9 in. by 4 in., perforated in such a way as to make long paths for heat transmission (i.e. better heat insulation), and provided with a pair of thumb holes for lifting. The perforations run vertically, and the brickwork is mortared by machine in three strips (central and along each edge), with two strips up the ends. With this construction they are going up seven storeys, and if they make lower storeys with 35 cm. walls, they are going up to nine storeys. This in turn is more than matched in Switzerland-in Basle-where 13-storey blocks have been erected with 38-cm. thicknesses. And, in a way even this is outstripped again in Germany and in Sweden where 9-in. walls of light-weight blocks carry nine-storey buildings.

The fact is that continental brick and block makers seem often to have more modern plant and laboratories and modern ideas, and to be more alive to the need to push forward and explore the extended use of their products; can we honestly say we can see the counterpart here? Parts of the industry are very efficient, but this is not enough.

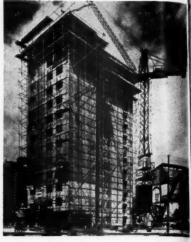
Turning now to framed structures, a

first, though relatively mundane matter, is to look at the common steel and reinforced concrete frames, for steel is now back again and the question is which of these two is likely to be our mainstay? On the whole the advantage seems to lie with steel; concrete is slow, the shuttering tends to be expensive, and reinforcing has a heavy labour charge, though prefabrication of it may reduce this. The fact that steel is in fact part-prefabricated gives it a head-start which concrete seems unlikely to be able to overtake.

Having got this far, in comparing two such common materials, one is tempted to go further and ask if we have always to cover up the steel. Most of us will have noticed with a good deal of interest Mies van der Rohe's work in Illinois, where he coats his steel with a special bituminous compound supplied to a specification by the American naval authorities. One of the authors examined it recently, and was very favourably impressed indeed by the freedom from trouble and high quality of workmanship, for there seemed nothing to choose as regards apparent age between the newest and oldest buildings.

The technology and preparatory work put into this development was and is of a very high order, of course, and needs to be for this manner of design. One wonders whether attempts now being made to do something very much like it over here will work out quite so well. Can it be afforded? Can our levels of technology meet the demands? Will something designed for Chicago's climate stand up to our exacting conditions? And we must remember, so far as bituminous compounds go, that the one thing that breaks them down quickly is sunlight. All these questions spring to mind as one's memory goes back to unhappy histories of architectural ideas imported as architecture rather than as technology.

Architecture is the child of its environment.



Four-storey no-fines flats in Coventry and a 19-storey no-fines block in Germany. Note the grading to stronger concrete at the base in the German block

Concrete may not seem so promising for in situ framing, but in some other forms it has a strong position.

One approach was seen by recent architectural visitors to Russia who brought back illustrations of precast framing being used for apparently quite high structures, with the junctions being formed by welding together in situ some steel shoes cast in the ends of beams and stanchions. Presumably these were located truly and helped the erection of the frame. This may be a good line to pursue, but it seems somewhat cumbersome and inelegant and contributes nothing to design. It is just a frame, seemingly, with the disadvantage that a fair range of components is needed.

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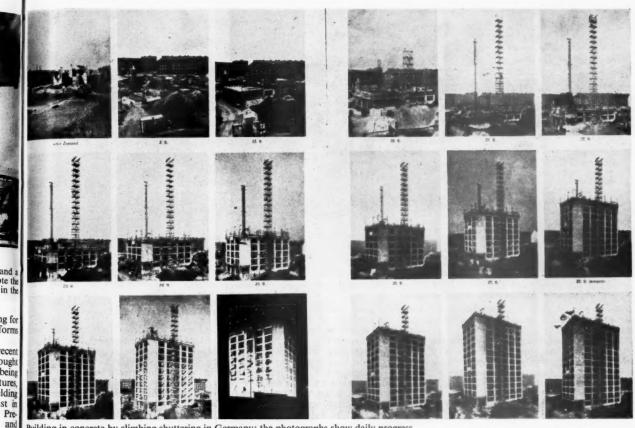
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A more promising line is found in a recent German building in Cologne, for one of the Ministries. In this case exposed uprights between windows are high-quality precast concrete units of storey height, designed to take vertical loads but not connected to the floors in any way capable of transmitting moments. Instead, the floors are cast in situ and the moments resulting from wind forces are taken by the large panel walls formed at the ends of the blocks and at other strategically chosen points in the plan. Spandrel panels fill in the spaces below the windows.

The whole conception is simple, and well suited for quick erection. It provides very satisfactory office accommodation and gives clean, rather elegant interiors and exteriors. Owing to the high quality of the precasting, they get away with no plastering in many places, and only need a skim coat in others. It is well worth consideration for wide use.

The prestressed concrete system newly developed as part of the Ministry of Education development programme begins to look as though it may grow into a fine and lusty member of our community of building types.



Building in concrete by climbing shuttering in Germany: the photographs show daily progress

It has been described in the Press and . therefore needs only the briefest of descriptions here. It is a fully prefabricated system, comprising prestressed stanchions of remarkably small section (e.g. 4 in. by 6 in.) considering they run through four storeys, and these carry a flooring system of constant depth precast units, post-stressed into beams capable of classroom spans, decked in concrete slabs, and with precast sound-absorbent plaster ceiling panels. The outer walls are clad in precast concrete slabs with a crushed stone finish, and hardwood windows are used.

Apparently the economics of this system are working out very well and are proving attractive to buyers. Like so many of the other prefabrication systems originating in the British schools world, this can be used for many purposes apart from educational buildings because of its quality, quickness, price and adaptability. The big spans they are organised to give contribute valuably to their adaptability, of course, and so does their ability to be taken several storeys high.

In Scandinavia and in one or two places elsewhere efforts have been made to develop precasting techniques for flats by providing whole walls, partitions and floors, fabricated in concrete in a site shop and erected by a gantry travelling over the whole building. The idea of the site shop is sound, for it generally pays in precasting any extensive run of units to have it done on the site rather than to transport finished units. But the gantry is an unwieldy, expensive item, and the idea itself seems to be architecturally rather unsatisfactory.

As a means of getting walls and floors in place, climbing shuttering for in situ work holds out basically much more prospect of success, and a trend in this direction seems bound to occur. Its essential advantage is that the three operations of striking, cleaning and re-erecting which are necessary at every lift, with conventional shuttering, are entirely cut out. These often make formwork more expensive than the item being formed inside it. The main limitation of climbing shuttering is that the building must be identical in respect of main elements on each floor.

Buildings are being erected with this system in Hamburg. The shuttering is designed to climb up rods left in the centre of the concrete elements, and wall shutters are joined by decking which provides a working platform over the whole area and eventually is itself the formwork for the roof. The intermediate floors are formed subsequently on telescopic shuttering, held in holes left in the walls. It is a pity the platform cannot be lowered for this part of the job. The shutters climb on automatic hydraulic jacks working uniformly at a 4-in. rise per hour, and a little arithmetic will indicate that this represents a storey per 24-hr. day.

Curiously enough, shuttering of this general type was in use here twenty years ago or more for silos, but the jacks were mechanical. One wonders at once why it was not developed here to the stage now reached in Germany. Plenty of time was available and the need was evident. Is it once again the lack of imagination at the development stage, which seems so often to hold us up?

Cross-wall (or box-frame) construction has been mentioned in the discussion on claddings. It is a strong contender for a place in our general construction practice because of its simplicity and economy, part of which is due to the limited foundationing required. It lends itself well to panel claddings, which lead to secondary economies, and might be a very good system to build by climbing shuttering.

The construction of flats in no-fines concrete is developing now in this country, which pioneered (north of the border) the idea of no-fines concrete. The basic economy comes from the reduced cost of material and from the fact that because it does not build up normal pressure in the formwork, you can cast at least two storeys at once, using only lightweight open-mesh shuttering. The shutters are of course large and their arrangement has to be taken into account in design; and they are handled by

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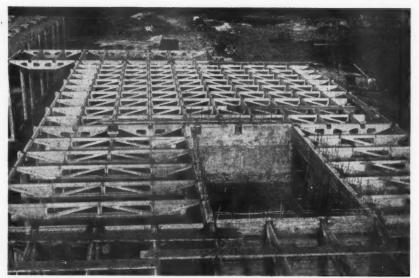
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Prestressed and post-stressed concrete prefabricated school (Intergrid construction), Worthing. Ministry of Education Architects and Building Branch

crane. The usual finish is a rendering, but we discussed earlier the apparent advantages of lightweight claddings.

At Coventry and Birmingham they have used the technique up to four or six storeys, the no-fines walls in the latter being supplemented by dense r.c. framing formed in situ. It is an interesting development. but apparently has been much outdone in Germany where heights as great as 19 storeys have been built. The design there is well engineered, the concretes being graded to increase in strength towards the bottom storeys, and the plan being well organised so that plan elements introduce stiffening in particular ways and places to provide the necessary stability. The Germans have made extensive use of no-fines concrete to absorb their war-time rubble.

It will be seen that even while it may very well be that steel is cheaper than concrete for ordinary frames, it is obvious that the versatility of concrete is going to keep it firmly in the picture.

We ignored timber in Part II because as a material it is hardly changing, and anything to be said about it concerns techniques mainly.

The timber shortages of the past fifteen years have in a sense deprived us of a generation of experience in the refined engineering use of this material, though the shortages themselves gave rise to some interesting efforts to replace timber by ingenuity, reflected, for instance, in that remarkable plywood aircraft the 'Mosquito'. Now that timber is free from control here, the field is wide open for new enterprise in timber construction.

It does not seem that continental folk are really very much interested in timber engineering, but Americans definitely are of course, and gave considerable attention during the war and afterward to glued laminated arches and similar structures. The only good example of this that we recall on our side of the water is the Waterloo Station entrance built for the Festival of Britain in 1951. Some Americans have been seriously considering timber either in arch or lamella form for factories, on the assumption that full sprinklering will sufficiently take care of fire risks.

Here in Britain the only really outstanding timber development is for systems designed in the first instance for schools, and now being used, like other school systems, for other purposes. One of the interesting things about these is that they have been developed thus far mainly in terms of imported, rather expensive hardwoods, and even so they proved sharply competitive in costs. Now that the cheaper softwood is freely available again they are obviously in an even stronger position, cost-wise.

One of the first off the mark was the Derwent system, mainly of pre-formed panels, fixed between the simplest of uprights, carrying a stressed plywood beam system for the roof. The thing that stamps this job with a special quality, apart from its simplicity, is the use of a very elegant mahogany cladding in vertical strips. Originally designed as a single-storey system, it has been worked up now to a second floor.

Alongside this in a sense stands Hertfordshire's own system, using rather handsome, heavy timber V's as major stanchions, anti-phased in the modular grid, again carrying a stressed plywood major beam system with minor beams to supplement it. The external cladding is of vertical strip boarding and the whole looks very well. In fact the big V's give a special sense of architectural quality which is rather outside our experience in our prefabricated schools, at least so far as external appearance is concerned.

The Punt system is a timber arrangement in which the panels meet on the grid lines,



German combined prefabrication and in situ work. The uprights are precast load-bearing elements and the panels, like this corner panel, are designed to take wind forces

and carry all the roof loads, the roof being of long box beams, or 'punts' with stressed plywood sides. The assembly is commenced by accurately setting out a steel foundation jig, which then forms a permanent shutter for concrete and guides the setting out of all main plan components. The walls and partitions are assembled complete with doors and windows, and a building of charm and quality is put together astonishingly quickly.

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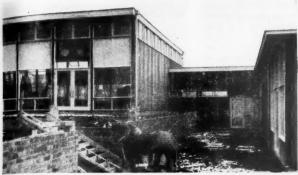
The difficulties of fire-proofing timber discourage its use for more than one or two storeys, but within this limitation it is crystal clear that prefabricated wood structures can carve a distinct niche for themselves in modern building in this country. It shows up the advantageous cost characteristics of timber used this way that the combination should be so competitive with other prefabrication here in Britain, where all the timber has to be imported.

Notes about two or three isolated matters are needed here to round off our discussion on techniques of construction.

Floors have had a considerable amount of attention since the war without any very marked change of floor construction being caused. We cannot attempt a full review, but one ingenious new Scottish development may not yet have come to general notice. This is a system using thin prestressed concrete planks which are sprung upwards in the centre by strutting, and are then given a screed to take the compression stresses as it flattens on removing the supports. It is topped off with a flooring finish and is plastered beneath. Perhaps some such development will hold a place in building though this will depend on its costs, which on the face of it seem likely to be a little high.

This suggests a remark about the lowering of floor costs generally. In principle the

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The Derwent system

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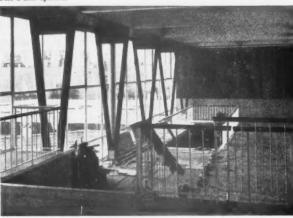
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Above and right, the Hertfordshire County Council system. Three types have fitting the first of timber prefabrication developed for schools



The Punt system



best hope of reaching minimum costs for floors appears to be by precasting so that finishing can be completed in one operation only above and below. In a broad sense this should be true of construction generally; if you leave more than one operation to be done on site for finishing you have stopped short of what should be worth while; and if you apply the final finish off the site, you are asking for something in the way of carefulness on the site that the industry cannot in some cases easily give.

We cannot take time to discuss foundations in any detail here, but there is a kind of thinking about them which we want to mention. It is the need to recognise that there is sometimes an interplay of suband super-structure which calls for an architectonic concept below ground if you are to get true economy and efficiency. One can catch the idea from an example.

No-fines concrete is not very strong in tension and it is best to have a building of this material on a very rigid foundation. Now the easiest and cheapest way to get rigidity is likely to be by making the basement as a reinforced concrete box system, but even so, if the plan form becomes large, the box has to be increased in depth to retain the desirable rigidity. This probably means increasing the number of storeys below ground to two, three or even more, and this loses its point in the end so that one sees the argument developing

that with this kind of structure the right course is probably to limit the area and go up in height.

Other examples could be quoted, but this is sufficient to illustrate the point that we need information about types of foundation and types of soil of the kind which makes it possible for the architectural imagination to come to bear upon the whole structure, and not just the part that shows above ground. Things that go wrong below ground are not merely acts of God, and they are best avoided not merely by leaving the business to an engineer, but by seeing that sub- and super-structure are conceived in a good architectural relationship.

We have omitted from our paper any general discussion of mechanical plant because it concerns assembly rather than design. But there is one item we must bring in, the continental tower crane, unknown here until recently but now in rapidly widening use. A variety of types has been developed for all sorts of buildings, ranging from small ones for houses, through tall, long-reaching ones for quite big buildings, and self-climbing types for the tallest structures, not used here yet.

Both in the industry and the profession we have to learn how to use these to get the best value from them. The industry, for its part, must eventually not only be expected to have the right types, but to know how

to organise its labour in relation to them. On our side we have to think of at least three things—our plans in relation to crane movements and range; the sequence of operations so that cranes can be fully utilised to lift everything liftable; and the striking of a good balance between the capacity of cranes and the weight of things to be lifted.

It is too early to expect these things to be crystallised into accepted practices; but it is not too early for us to be forcing the pace in this direction, for the opportunities of economy and efficiency lie first in our own hands, on the drawing board. This is true of all kinds of construction, but it is especially true of innovation because it can so easily become an economic liability rather than an asset if it is not easily buildable.

In flats today one touch-point of economy is through the use of shunt flues for the chimney system. The aero-dynamics of shunt-flue chimney systems are a field where much remains to be learnt, but there are a great number of continental installations operating today which give us a good spring-board. Unfortunately it appears that most of them are connected to continental closed stoves, and the few that operate with open fires do so in centrally heated buildings, where the central heating assures the warm flue needed for draught. The next stage, which we should try to determine quickly,

is to see how it works with open fires but without central heating, and whether it needs any supplementary flue-warming or other modification. The technique as it stands is to connect four or five fireplaces to one flue, with the top storey always separate. On this basis heights of ten or eleven storeys are now operating on shunt systems, and of course are much more economical than ten or eleven flues.

Of course it is one of the mysteries of building in this country that one-storey constructions often turn out cheaper per unit volume than two- or three-storey work, and an even greater mystery that houses cost no more than about two-thirds of the price of an equivalent flat, and sometimes less. It is in such contrast with continental experience, where flats are cheaper if anything than houses. But this may, of course, be because continental houses are too expensive. This needs and is now to get some study.

We will finish this discussion of construction with a short note looking forward to something which may come to underlie a great deal of design and construction—modular co-ordination.

Here we only know it in practice now as an influence upon prefabrication in schools and some of the housing work, with big unit dimensions such as 3 ft., 3 ft. 4 in., 4 ft., 6 ft. 4 in., and 8 ft. 3 in., used both for components and grid planning. Other people in other countries know it only or mainly as a small unit of 4 in. or 5 in. size, generally influencing building by lacing together a critical set of building standards. Then of course it tends to sweep through building design and construction by interpenetrating it with some semblance of dimensional co-ordination.

It is interesting to look at the European picture more closely, and especially the German sector of it, for the Germans use it more extensively than others in practice. The position there is that a 12.5 cm. module (about 5 in.) is the basic unit in standards for the shell and its components, associated for planning purposes with a 10-cm. module. It is a condition of subsidy for housing work that these are used. Industry appears to be producing the components willingly, and although their use is more successful in some areas than others it is clear that it can work well and then it does seem to lead to economies.

In Sweden they are moving in much the same direction, but they are spending a long time preparing thoroughly before introducing the ideas into practice.

Some day it will come to us, if for no other reason than to clarify the dimensional disarray of building standards. The human mind is like that. But if researches now being carried out show that there are solid economic gains to be had through coordination and how to maximise them, a sharper incentive will be given to the standardising side of the matter and we will no doubt get on more quickly.

Some formidable questions have to be answered, however, for presumably we will have to have a small module for conventional building work, and this must be related to the large modules needed for prefabrication if we are to avoid perpetual muddle in our standards. Thus we will apparently have to have a basic unit with preferred multiples of it, and no doubt the arguments about the basic unit will be quite warm, for a great deal is at stake. Perhaps all that can safely be said at this moment is that the 4-in. module which is so widely talked of is by no means the only contender worth considering; there is at least one unit either side of it, and perhaps more that have arguments in their favour also. An open mind is now the vital need.

### PART IV. THE BROADER PICTURE

You cannot prepare a review of this kind without having aroused in your mind views and ideas which set the details in some sort of perspective, and in this final part of our paper we are putting down some of those that seem to us to be important for the profession to be clear about.

One cannot help being struck by the fact that far more initiative and far more inventiveness is being shown in construction than in materials, and that on the material side the outlook is better in the non-traditional than in the traditional fields. The makers of traditional materials supply the wherewithal for a great bulk of our building programme, and we cannot view any lack of initiative here without great concern.

On the face of it the distinction seems to be between those industries where modern science, engineering and technology are allowed to play their part, and those where we see too little evidence of it. A disappointing spot seems to be just where we are entitled to expect the most responsible approach, namely, in the clay industries, because they are so important. It is not only that we find so few signs of interest in seeing if there are new ways they can serve modern building, but the costs often seem definitely high, though some parts of the industry are, of course, very efficient. Improvements should be possible in other parts, and we should see a better range of

Perhaps the fundamental trouble is that brickwork is still substantially unchallenged on overall cost, but if this is the reason it is not one that we can accept as a justification for any easy view of the situation.

Among the dangers in writing a paper of this kind is that of creating an impression that somehow everything is wrong at home and everything is right elsewhere. Possibly this particular paper suggests that Americans or continental people are more active in innovation than we, and perhaps this is the case; but the authors do not set out to suggest it, because it is largely irrelevant, and in any case the evidence



Prestressed concrete planks being made ready to receive the screed which takes the compression stresses

would have to be far more complete than they can muster at the moment. The fact is that in some spheres Britain leads, as in prefabrication, while in other branches other countries are ahead. One draws a pattern of light and shade at home, but abroad only the highlights attract us. The point is not to worry about the comparison, but to concentrate on anything useful that anybody has to teach and on getting any of our backward industries to move forward.

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Another danger in drawing comparisons between old and new developments is that knowledge of performance of the latter must inevitably rest on less sure foundations. We have not wished to qualify every statement we make, but rather to indicate broad trends and possibilities and we ask the reader to bear this in mind.

In much the same vein, it is easy to create an overall impression that the building industry, and especially the materials side, gives a faulty service. We may see shortcomings that we feel ought to be corrected, but in all fairness we must remember that so far as things going wrong are concerned, more troubles are due to misuse than to poor manufacture. We must be as careful to search for faults in ourselves as in others; indeed self-examination should come first so that the other may have more justification.

It is easily possible, too, to leave an unintended feeling in this kind of paper that research is inadequate or insufficiently used. Most of those who are in research realise the need for expansion of it, and for better reception and development mechanisms in industry; but let it be very clearly understood at the same time that in costing, mechanisation, management, structural design, and materials development, to mention only some of the fields we have discussed, the fact that we can see the situation clearly now, and are on the march—often a long way forward—is due more to research and attendant development than to any other single factor, excepting perhaps economic motives.

The development that gives uniqueness to British post-war building is the growth



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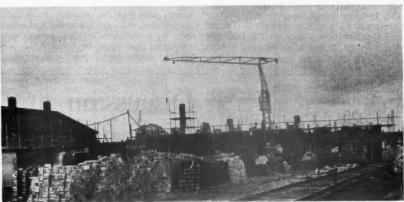
Tower cranes of various kinds. The selfclimbing type is not shown; it climbs up inside a suitable part of the building frame, to be always at a high point

of high quality, large-scale prefabrication. In no other country of the world is anything comparable to be seen. It is successful, its costs are not unreasonable at present, it offers savings in time and great convenience, with controlled quality and architectural elegance. If costs of traditional work drop, as they can be made to do, then prefabrication may have a harder time; but it is in its infancy, and no doubt can look forward with some confidence to holding a competitive position as it develops bigger markets and higher efficiencies.

One cannot help asking what place we are going to give it in our daily work, but this then begs one or two still wider questions that we ought to ask ourselves about techniques. We have all noticed the strain of getting things built since the war; almost every building seems a struggle to make the industry meet our demands in design. Partly it is due to shortages, but it is also partly due to our inability to settle down yet with an accepted common grammar of modern conventional building, and work within it. We are in a highly creative period of design where we seek originality at every turn. The difficulty seemingly is that we then demand more from our industry than it is organised to deliver. and this presumably is the cause of some of the strain.

Perhaps we ought to ask ourselves if we should not try to do as the Scandinavians have done-refine and keep simple our conventional building for day-to-day purposes; then add to it our growing repertoire of good prefabrication for the same categories of buildings, making as it were one stratum of low-cost, mass-produced,





easily assembled good quality 'goods'; and finally thus reserving a more proportionate effort to go into the high-grade 'one-off' design. It is a curious twist of fate that the originality which is the obvious merit of so many of today's British architects is at the same time one of the barriers to refinement, ease and simplicity of design and construction. We must remember that all the architectural innovation of recent years has not reduced building costs, but has, if anything, increased them. The one place where this generalisation does not hold is in the schools programme, where operational research has shown us the way to economical planning. This is an idea capable of much development in the profession.

The success of current prefabrication really derives from the successful introduction of the idea of development teams, where you combine architects, users, cost people, engineers, perhaps a specialist or two, to work with or in industry to bring into existence economical, sound, elegant new ways of combining new or existing building resources. It is the combined thinking and design power, and the kind of operational research approach that goes with it which yields the results. It is a new technique for us as architects, and it is a very valuable tool for shaping the industry to our needs. Even on its present scale it has served us well, and we must cultivate it in the profession until we feel it has given us all we can get out of it.

The London County Council has made an interesting new attack on flats along these lines, combining a nominated contractor, a consulting engineer, the Building Research Station, and a special group of its own architects. They have a substantial scheme to carry out, and are attacking through a thorough preliminary cost analysis of alternatives. The timetable does not permit a great deal of development work before the first buildings go on the ground, but a sustained attack by this method cannot fail to show good results before long. If the people are right, the method gives the power. The field before us for study in this way is very wide.

We have been somewhat critical here of what seems to be backwardness in the making of the traditional materials, but we must not forget to consider whether we are served well on the assembly side. Unquestionably organisation in the big firms is improving, and we can expect this to spread slowly down the ranks of builders; but are we quite happy about the training of labour? We can see clearly that we are increasingly dependent on higher-grade technology, which means not craftsmanship so much as the ability to think and understand from first principles. Roofings, wall facings, painting, concrete work, brickwork, prefabrication all bring us face to face with the ability or inability of the man doing the job to analyse correctly in novel situations. Is the training right, and is it having results that satisfy us? These people, in the end, are our agents, and it is up to us to satisfy ourselves about their quality and capacity.

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And then, in the end, we must look at ourselves, and ask some of the same questions. How well are we preparing our students in terms of what we are discussing here? Are we really working at the right level in education when we cannot claim a single post-graduate school in subjects nearer to the heart of architecture than town-planning? And do we older members of the profession yet have the right technique of keeping ourselves alive to modern problems, and in control of the situation?

These are matters that seem to need

some discussion.

Away back in the first years of this century, when reinforced concrete was new, the Institute took the responsibility for convening a Committee with Sir H. Tanner [F], President also of the Concrete Institute, as Chairman, to look after the development of it along sound lines.

We may think this now an unusual R.I.B.A. job, but is this sort of thing not still necessary today from us, and would it not be wise of us to consider afresh some way in which we can once again, as a profession, bring our influence directly to bear upon the trend of technical development in the Industry? For example, are we wholly fair in criticising some part of it for not producing what we want if we do not give voice to our needs? We cannot have development teams everywhere, though basically this is one of the best means to action. Alongside it, a suitable Institute mechanism might be the symposium, actively used, backed up when it seems results can thus be obtained by suitable committees with the industries concerned. We have isolated in this paper some questions that might be handled this way and no doubt plenty more will appear if we once start thinking this way. Perhaps the Institute's Science Committee can step into this field with the surest tread of any of us.

It is, at root, once again the problem of an attitude of mind, and in these days when it is becoming fashionable to look again at some of the things W. R. Lethaby used to say, it is worth recalling his essay on the 'Architecture of Adventure', which he claimed was architecture with science in the making of it. The 'Architecture of Adventure' was his phrase for what we are making today, and for him it implied that the only person really free to innovate was the person with a clear understanding of what he was departing from.

Whether it is for the purpose of finding and breaking truly new ground in design, or of seeing afresh the way to handle the old, the only way to manage today is by

thorough understanding.



# Discussion at the First Meeting of the Conference

At Torre Abbey, Torquay, 27 May 1954

The President in the Chair

Mr. W. A. Allen [A] and Mr. Edward D. Mills [F] delivered a précis of the first part of their paper dealing with materials. They also showed slides, American bricks and modular bricks and blocks from Germany of the types described in their paper.

Mr. Mills added a few supplementary words on flooring. He said that he had been much concerned with the problem of finding a good-looking, reasonably cheap and hard-wearing material, particularly for industry. There was a rumour that a system of low water ratio mechanically-compacted cement screeds had been used in America. He thought the answer to the problem was twofold: (1) to give more care and consideration to mixes and to keeping the water content as low as possible: (2) greater care in the preparation of the surface on which the screed is placed. Nails, wood shavings, plaster and other rubbish often masqueraded as the key to screed on many jobs. He wondered whether we were getting the workmanship and supervision we demanded-or whether we were demanding it. Do we ourselves, he asked, know enough about the materials and techniques we are trying to develop?

Mr. Howard V. Lobb, C.B.E. [F], said on the question of fuel ash, that the ash content of some blocks of which he had had personal experience was 92 per cent and the binding agent probably cement, although a certain amount of clay and

other mixtures were combined with it. It went into a rotary mill and was mixed together, then down a chute into a blockmaking machine. It required immense pressure. The size of the blocks was 18 in. by 9 in., and ordinary brick size. Eight hundred blocks could be made in an hour. They had been most used in engineering structures such as power stations. He said: I don't altogether agree with the statement made in the paper about shrinkage in drying. From my experience, they have the same drying shrinkage as brick, perhaps because of the low cement content. I think it is a very interesting development, and I thought architects would like to know that there is a satisfactory precedent for the use of this material, the disposal of which is otherwise a great problem. The Chief Engineer, Plymouth, has told me that they take tons out to sea every day and dump it, and it is so light that it floats. This sounds almost as bad as oil pollution. In Leicester they cart away many hundreds of tons every day, and pay 12s. 6d. a ton for carting, and even have to buy land purely

Mr. Allen: Was Mr. Lobb speaking of unfired or fired blocks and bricks?

Mr. Lobb: Unfired-steam cured.

Mr. Allen: There is a difference in the characteristics of fired and unfired. The ones we were speaking of are fired products made like ordinary clay brick, and dimensional stability is increased in manufacture

so that the units come out to a more uniform size. In other respects they are like clay brick in behaviour rather than sand lime.

At the moment the amount of pulverised fuel ash made in this country would fill Olympia once a month. In ten years' time it will fill it once a fortnight. That is a lot of material to get rid of. Its present production could increase the number of bricks made by a thousand million a year. The sensible course would seem to be, not to bring p.f.a. to clay works, but to make bricks at power stations as a part of the general economy of manufacturing electricity from coal. In such bricks there is only 15 per cent clay to 85 per cent fuel ash. Hams Hall generating station, near Birmingham, on its present production of pulverised fuel ash, could manufacture a hundred million bricks a year. It was now more likely that the first brickworks would be at Hams Hall, not Hoddesden, as mentioned in the paper.

Mr. Cecil Howitt, D.S.O., O.B.E. [F], said two things struck him in building at the present time. (1) You must build dry, (2) what you use must be handleable. The first would avoid the present practice of a plasterer going to a lot of trouble to get his plaster wet, and then having to get this dried out before anyone could move in, the second would do away with the sight of people struggling with sheets and loads too big for them, and having to use hoists.

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aps the What we had to aim at was factory production in building. Lever House was the best building in modern techniques at the present time, and the architect had told him that it was 85 per cent shop made. Americans, he said, don't build, they assemble. We have to come to something like that.

His other point was acoustics. We were doing all this light building, but when we had finished a light frame building we found the acoustics had gone. The whole place rang. From the acoustics point of view there was nothing finer than the oldfashioned house with thick walls and

Mr. Mills: We have tried to stress the points of building dry and in handleable units. We shall cover the second point tomorrow. One must in future bear in mind the handling of materials in the early stages of design, and get an inter-use of materials and techniques so complete that it will even involve the technique of site operation.

In connection with this, two years ago in Sweden I was struck with the way the Swedes delivered their bricks. The bricks arrive in little banded packages the right size to fit the hoist or the hod. They are clean and undamaged, and all the bricklayer has to do is snip the wire bands. It is so simple, so low-cost, and I wonder if we couldn't interest the brick manufacturers in it here.

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Mr. Allen: I'm sorry we appear to have to interest the brick industry in this sort of thing. They ought to be trying to interest us.

On the question of acoustics, I remember so often as a child and a student in Canada. as one walked along one could hear a telephone ringing clearly inside a house. You can often hear everything that goes on inside an American house, and you could open most of them with a tin-opener.

Mr. J. Lewis Womersley, A.M.T.P.I. [A] (City Architect, Sheffield): It is, I feel, significant that this paper is being given jointly by one architect who specialises in building research and another who has a very considerable experience in practice.

Some practising architects have felt that in the past there has been insufficient relationship between research and real building—that the research men have tended to shut themselves up in smelly laboratories subjecting building materials to all sorts of peculiar chemical conditions which they would rarely encounter on an average building site. This illusion, which in the recent past has been partly dispelled by the publicity given to practical research in the field-such as that on the use of tower cranes and experiments on the efficacy of new types of house, flat and school construction-should be finally buried and forgotten as a result of this excellent paper in which idealism and practicability are so adequately combined.

It is perhaps of some solace to many of us, who inevitably suffer from the occasional failure of a material or a techniquetry how we may to avoid it-to be told that we have in this country 'a climate as hard as any in the world for buildings'. Many architects have learnt this through bitter experience, but we may hope that future architects will accept it as a fact from Mr. Allen and Mr. Mills. If they do so, and accept the attendant responsibilities, they will prevent their clients from be-coming embittered and, I hope, store up happiness and contentment for themselves.

It is, of course, right and proper that architects should enthuse about the architecture of, say, Brazil. But if we have the accompanying enthusiasm for inquiry and thoroughness, without which no architect is fully equipped to practice, we will also seek out knowledge of the climatic conditions which give rise to this particular type of architecture. And, returning to a consideration of British problems, we will evolve solutions based upon our own requirements and conditions. For, as the authors say elsewhere in their paper, 'Architecture is the child of its environment.

It would be an interesting experiment to forget for a time the photographs of all the contemporary work of one's colleagues, both here and abroad, and concentrate firstly on relearning the fundamental principles of historical design, and secondly, on the uses and abuses of new materials and techniques, to which this paper would provide a grand introduction. In this way imitation, both conscious and unconscious, logical and illogical, would be eliminated and a truly British architecture might more readily arise.

As things are, far too few of us can stand up to Lethaby's definition of an innovator -mentioned at the end of this paper—as a person with a clear understanding of what

he is departing from.

Being engaged to an appreciable extent on housing, where the cost of materials may be said to be of almost first importance, it has become all too clear to me that the alternative cladding material of comparable price and suitability to brick has yet to be discovered. Thus I would like to support wholeheartedly the appeal of the authors for more enterprise in the production of new and coloured surface finishes to bricks and to other larger clay slabs. I feel sure, however, that if we knew more precisely what we wanted and could, so far as lies within the power of our profession, assure the brickmakers of a continuing market, they would be prepared to go into production. New methods and new plant cost money, and in these days of nearshortage and easy markets it is understandable that manufacturers require some assurance about demand before developing a new line.

At the same time there is, without doubt, urgent need to continue research on the production of new light-weight cladding materials. The authors have stated the case for this clearly.

In multi-storey buildings, lightness and speed of erection are worth a lot of money, and the initial cost of the cladding is very far from being the ultimate criterion. At the same time, this initial cost must, somehow, be substantially reduced, and here again we require to convince manufacturers of the size of the demand for the continuous and repetitive use of standard units in order to assist them to bring costs down to a minimum.

If, as a result of this paper and this Conference, a research body, consisting of individuals of the calibre of the authors, were set up with the task of producing adequate alternative light-weight external wall-panels-and the problems facing them are fully set out on this paper-we should in my opinion have taken a step of the utmost importance and significance for the future of British architecture.

Mr. Allen: I hope there is no particular feeling abroad now that B.R.S. is still suffering too much from what used to be felt to be too great an interest in failures rather than successes. Naturally enough, one tends to get a little cynical when one gets five or six thousand cases submitted every year.

As regards Sheffield, I should be interested to know what Mr. Womersley thinks Sheffield would look like now had it been built in the new enamelled sheets, washable, clean and colourful. Would it be any improvement upon his present

surroundings?

On the question of giving a sure market to industry; one can't give an assured market in the sense of actually placing orders. Perhaps it is my Canadian background coming out, but I think that if something is put on the market that is wanted and that it is backed by sound judgment and put up at the right price, then it will go. I should like to see us telling industry what we want.

Mr. Mills: This paper is already having some effect, because I have begun to get in my office letters from manufacturers saying 'We have been making this for many years.' It is odd that one has never heard of them before!

About failures and the B.R.S. We do tend to run to the B.R.S. when things go wrong, and their help and advice is tremendously valuable. I should like to see this Conference start a new trend-for architects to run to B.R.S. when something has gone particularly right, to tell them of it. We might start a Success Department there, to which bright ideas are reportedon the condition that everyone else can use

Mr. Clifford Culpin [F]: I feel we have to regard as especially significant the authors' handling in their paper of the question of renderings. They have gone beyond warning us of the difficulties of producing satisfactory renderings, or recommending specifications and methods for achieving good results. They have gone so far as to say that renderings are so unsuited to the British climate that they have not been dealt with at all. This warning is alarming, and very timely. The current shortage of facing bricks, at any rate those at a reasonable price, has encouraged a wide return of external renderings, often on sulphateladen flettons. There has been a tendency in design to assume that a group of ill-assorted and badly arranged openings in an elevation can be linked together satisfactorily into one entity, within a rendered panel. It is so easy to put a few dots on an elevation, but so difficult, it seems, to ensure that the rendering will stay on, or will not craze, or shrink or stain! Even where we have used rendering on a seriously-considered elevation, and not just as a result of drawing-board slickness, some of us ought to hurry back from this Conference and issue variation orders at the first opportunity! Perhaps Mr. Allen can, on this question of renderings, add to what he has already, by implication, told us.

Mr. Mills: It is most depressing the way renderings fail here. If you visit Italy and Switzerland you see the most wonderful renderings, with no cracks or other defects. There are two points: we are liable to render over any old thing, and we are always faced with our shocking climate and its temperature changes. And Mr. Culpin's point is very well worth while. On smallscale domestic work, particularly in clean country areas, renderings have stood up for a fair time. It is essential that we should take the greatest care with the backing on which we put the rendering.

Mr. Allen: We were, of course, speaking of renderings on multi-storey urban buildings, rather than rural domestic property, where colouring is feasible at intervals.

Lieut.-Col. Lesslie K. Watson, M.B.E., T.D. [F]: About five years ago I had a factory to build. Many different processes were used and we finished up with about eight different flooring materials. I was very anxious to find one material which would be useful for the main floor, which would have very heavy work going on on it. At that time Semtex flooring had just come on to the market. I did all I could to find out about it. I visited two jobs done with it a year earlier, and they looked all right. I wrote to B.R.S. and got the results of their tests. I also discussed it with the manufacturers. I decided to use it. The factory was completed in a great hurry and taken over by stages, when only the first part of the heating system had been installed, so paraffin stoves were used. One morning we had a frantic telephone message to say the floor was disintegrating. Paraffin had been spilt and was simply eating the stuff away.

Now nothing had warned me of that possibility, and I would suggest that it is most important for us to be told what a material will not do, as well as what it will.

It is also very difficult for the ordinary architect, who can't spend a lot of time going into the chemical qualities of materials, to understand what B.R.S. are referring to when they talk of things by technical names. It is no use asking the manufacturers what their stuff is made of. Their representatives usually don't knowor won't tell. I think we need an easier means of getting to know what B.R.S.

There is also the point that we should be warned if a material is of a temporary nature only. There are a number of buildings today which were all right when they were put up twenty years ago, but the materials used are now giving trouble. And there is a great deal of electric wiring going into buildings that won't last that long.

Mr. Allen: One point stands out in this country-we have not got good technology as compared with the United States. But here our libel laws make life very difficult for people who want to be objective and helpful. There was a move to modify them after the war, and if this move had come to anything it would have helped B.R.S. a great deal. Possibly one might, by fighting a few court cases, establish the precedent that the right of fair comment is more important than protecting the other chap's

As to the manufacturer telling us what a material will not do, this is part of the general question we are faced with, that many sales people and even many manufacturers themselves are just not technically good enough. If we set our own standards high, and insist on having the technical information we want, we will begin to get it. We are beginning to get it anyway. This is one of the general problems of British industry, and I don't see why we shouldn't raise it in our own particular

About the paraffin-I don't know how far one can expect to anticipate all problems. I think most of us would have missed that

Mr. Mills: I would like to touch on one point raised by Colonel Watson, and that is the deplorably low quality of the technical information put out by manufacturers. That is one of the things I most envied in the States, the catalogues produced by most American firms, giving a great deal more useful technical information about their products. I should like us to press manufacturers to improve not only the standard of their products, but the standard of the literature describing them.

Mr. Samuel Morrison [A]: I should like to tell you of a conversation I over-heard between three young architects. The first said: 'I have just discovered the most interesting new material. It's that stuff we find in trenches, called clay. If you burn it you get nice modular units which are not bad in walls.' The second said: 'I have found a new material, too, one which cuts well, you can carve it, it works as well as plastics, and it grows on trees.' And the third one said: 'Thank heavens. For the last two years we have been covering our buildings entirely with glass outside, and it is getting boring and out of date.

I have some sympathy with the young men, for I belong to the school of thought that believes one should build all dry, prefabricated buildings, using large pieces of material. I have frequently yearned for something like brick, but felt it would be to the U naughty to use it. After the brain-washing at all t ceremony we have had here this morning I see how wrong I was. Bricks are now in

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thing a I am happy to know our climate is so local c bad, because the use of so many of the which h non-traditional materials is liable to give experie us an international architecture, which I think v believe is the wrong way to go, and which will make the world a very dull place. It is probably only because we use local materials suitable to our climate that we get architecture which is national, and I am old-fashioned enough to like that.

Mr. John Stetson, representing the American Institute of Architects: I think I may be considered the attorney for the defence, since I live in America. I have listened with very great interest to your problems, and I should like to say that we do have rain in the States, and that I have only seen two buildings assembled. We still build with bricks. We also know about wood. The thing that amazes me is that you seem to think you are the only people who have to fight moisture. How would you tackle a downpour of 10 in, of rain in twelve hours with a wind averaging 75 m.p.h., with gusts from 40 to 150 m.p.h. and a sustained wind of over 100 m.p.h. for over two hours? Perhaps I should say that I live in Florida.

I was also interested in your discussion on the appearance of the surfaces of your buildings. I have seen some fine old buildings so black that I had to look very closely to examine the detail. I wonder if you have thought what the chemical reactions of smoke and gas in some of your manufacturing centres might do to skin surfaces. We had a very interesting experience in Florida. In Jacksonville there are several large manufacturing plants and one day the young ladies of the town found their nylons disintegrating. Just what does smoke do? If smoke and gas on a surface are continually getting wet, is there not some chemical reaction? Your little old country places do not show the same disintegration of surfaces as the cities do.

Mr. Stetson then went on to speak of smoke abolition in Pittsburgh, which had been successful within two years, and of an organisation in Cleveland, Ohio, called 'The Master Builders,' which had done much to experiment with new materials.

On thermal expansion, Mr. Stetson said the relationship of mass and weight to expansion was the governing factor. He had paid an interesting visit to the pumice mines of Greece and thought the question of using pumice concrete—frowned on in Britain and in most of the States—should be considered, as its use would limit the expansion of a building.

Packaged bricks, he said, had been used in the States for some years. He would put the breakage figure at about one-tenth of one per cent.

Mr. Allen: I am very grateful to Mr. Stetson and very glad to see him here as a representative of A.I.A. I hope he does not feel that we have set out to be unkind

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As regards their weather, I know something about it, and agree that very severe local conditions are experienced there, which hit buildings in ways which we don't experience in Britain. All the same, I think we should have a healthy respect for which this climate of ours, which, taken over the country as a whole, does in its own insidious way get there in the end.

We have, of course, for some time been looking at the effect of smoke on buildings, and so far our efforts have been more successful in coping when it has happened

than in stopping it happening.

Mr. Mills: We have, of course, in certain areas of our cities modified smoke abatement provisions in force. But I can't help feeling that if some of our buildings were cleaned we might get a shock and wish their blackness back again!

Mr. Eric S. Ambrose [F]: One or two speakers have referred to manufacturers who don't give us all the information we require. Most of us are at a loss to know how to file the catalogues we do get, so we just glance rapidly through them and throw them away. For years I have been campaigning for a simpler method, and I think this might be for manufacturers to send all their information printed on a postcard, which we could then file on our desks or in a box alphabetically.

I particularly appreciate one other point that has been made, namely, B.R.S.'s difficulty in telling us all we want to know about materials. Some time ago I had the temerity to say in print that I preferred not to use certain thermo-plastics, and ever since I have been forced to eat a great number of dinners at the hands of managing directors eager to point out my ignorance. I therefore understand B.R.S. in their

Mr. Allen: We can't, of course, say what has gone wrong with named materials. But without actually naming them there is quite a lot one can do. I remember one case twenty years ago. We were having quite a row with manufacturers in a certain industry. We wanted them to bring their literature more into line with the facts. We followed our usual practice of trying to persuade them to do this, but it had no effect and in the end we published. It did quite a lot of good. We have sometimes stuck to our guns and mentioned by their trade names materials we don't like, and we have found the materials and the companies making them tend to disappear, but one can't always do this. I think the profession must stick together and help itself in this matter. One of the purposes of these particular meetings is to collect experiences which will confirm what we have said in the paper, or show that there is another side to the picture.

Mr. Mills: About the quality of publicity material put out by building manufacturers: I know there are representatives of certain

architectural journals here. Is there any possibility of advertising managers putting a little pressure on people who pay for advertising space and suggesting the sort of material they should include, and pointing out to them the effect it would have on sales if more technical information were given and less blurb?

Mr. Allen: As to the size of the things we get, I think it would be nice if we could have just a standard card we could send in reply—provided by the R.I.B.A. thanking the manufacturers for sending their catalogue, but saying that as it was not of British standard size it had not been

Mr. L. C. Howitt, Dip.T.P., M.T.P.I. [F] (City Architect, Manchester): We have for a long time had a smokeless zone in the centre of Manchester, and on those rare occasions when we get fogs in Manchester, we have thick vellow stuff on the outskirts but only a pure white mist in the centre.

Incidentally, a sanitary inspector the other day said the products emitted from smokeless fuels are of a detergent nature, so they actually clean buildings. I should like to know if there is any truth in that statement.

Mr. Mills: I can only say that I was told in the States that the reason the Lever building is of glass is that the clients particularly gave instructions that the building must be capable of being cleaned by their own products! Evidently Manchester goes one

Mr. H. S. Howgrave-Graham, A.M.P.T.I. [A], representing the Crawley Development Corporation: I should like to say one or two words about the design aspects of things that are in this paper. It has said a great many things that very much needed saying. I also am a foreigner-from South Africa-and came here in 1937 on a six months' visit which is not yet ended. I was then very much struck by the fact that buildings well worth seeing took on a very different aspect when one saw the building instead of an attractive photograph. The buildings varied enormously-some of them actually outstripped one's expectations: Dudok's, for example.

But I think that generally the buildings that have been built since the war have been disappointing. At the beginning of the century there was considerable local emphasis and an interest in the study of form, and a belief that if the form was right, you had a building. The post-war tendency has been to take a tremendous interest in texture and colour. But form, texture and colour don't necessarily add up to a building. Something more is needed. I think you can see what I mean if you consider, for instance, some of the Italian Renaissance buildings, and some Gothic. In such buildings defects are secondary and often endearing. But where you get a building which relies on a single solid plane, or on texture of surface for its effect, a crack becomes an architectural feature!

There is another point-when we get

these exciting materials we have been shown today, I hope town planning considerations will be very much borne in mind. Some colour effects might otherwise be rather

One practical point—we have been told that mineral felts keep a roof cooler when light instead of dark. One wonders whether there is any suitable felting for pitched roofs which won't look paltry or horrible.

Mr. Allen: Perhaps one of the relevant points is that white mineral finish to roofing felts is partly to protect the felt. A felt roof can get damaged by heat and the roof below may expand also and get damaged. But on a sloping roof, thermal problems don't arise so severely. In using a roofing felt on a slope, it seems to me you are not forced back to anything like such a light finish, and other materials are not damaged so severely by heat. So that the problem rather sidesteps itself on a sloping

I should say that I too am over here on a six months' visit from Canada! And I too found that many buildings which I expected to find from distant study to be glorious old masterpieces were extremely disappointing-if one could see them at all under their dirt! Some have come out from under it since, and we have suddenly discovered their glories, as the old masters come out from under their coats of yellow varnish when cleaned. And-again like old masters -they are far more glorious than some of the things we are doing today.

But I am very optimistic about the state of British architecture. Whenever any visitor comes to this country and professes himself disappointed in British buildings since the war, I take him on a tour of the schools of Hertfordshire. And as the result

of such a tour-I am optimistic!

Mr. Mills: I think Mr. Howgrave-Graham made an important point in saying that form, colour and texture are not enough. Those of us who have seen the Lever building admired it tremendously, but a whole street of Lever buildings would become rather dull. We have got to keep in mind colour and texture, but have also got to think in terms of bold modelling. One of the best examples is the United Nations secretariat building. I think an opportunity has been lost on its roof, where the lift motor rooms and other units were masked by a grille, and could have been boldly modelled to form an interesting skyline. Perhaps bold modelling is the missing item from Mr. Howgrave-Graham's list.

Mr. G. Noel Hill, M.P.T.I. [F]: We have all had different reactions to this paper. My first reaction came when we were told that we should tell of our successes and failures. Most of us are too modest to talk about our successes, and I don't like the word 'failure'. I prefer to talk about my 'experiences'.

My first experience came when I was very young. Something had gone wrong with a building, which had not been built by my firm but for which they were at the

time responsible. It was a steel-framed building, and there was a cavity in the wall. I had gone along with the senior assistant, and was surprised when he put his hand into the hole and pulled out a chunk of something as big as my hand and said 'That's a bit of steel stanchion'.

B.R.S. came in to tell me how to get over my second 'experience'. I was using an in situ concrete roof, with wood wool as

permanent shuttering for the walling, and the roof had projecting eaves. We therefore had two different conditions. When the removable shuttering was taken away I was very much surprised when, after a few weeks, we found the eaves curling up and taking the two top courses of brickwork with them. We got B.R.S. on to it, and they told us the drying out of the concrete over the wood wool had been slower than with the concrete eaves which being free to dry out, had curled up. We could have avoided the lifting of the two top courses of brickwork if we had had building paper on the top of the walk I may say that it hasn't gone back, though B.R.S. said it probably would!

Mr. Allen: We too have had brick courses come away with concrete!



# Discussion at the Second Meeting of the Conference

# At Torre Abbey, Torquay, 28 May 1954

The President in the Chair

The discussion at this meeting dealt principally with the second part of the paper-techniques. Mr. Allen and Mr. Mills again gave a précis of the relevant part of their paper and showed slides.

Mr. Allen: I should like to say a word about innovation. Since the war, innovation in building methods has increased cost, not decreased it. Nevertheless, we must experiment. So far as materials are concerned, where innovation has been made, it has been done by the industries infused by modern technology. I think the clay

industry is one that badly needs innovation. As we have said in the paper, the unique feature of British post-war building is the development of prefabrication. In no other country has it been so extensively used and so reasonably priced. And here I would like to pay tribute to our President-Elect. He has been the dynamo behind this movement for ten years, and we are all very grateful for his work and leadership. He has introduced a tremendous amount of quality, economy and common sense into a field which had previously been reserved for rather abortive efforts in housing. And with this has gone the idea of development teams. They are part of our technique of getting more sure and firm control over the building industry; for if we are going to control and lead that industry and get what we want from it, it must be by co-operation. We have got to work with engineers, builders, contractors. And here I would add that teamwork is as well developed in this country as in any.

We have an educational problem to face; are we getting the right balance of training for architects? There is also the problem, are we getting what we want from the building industry? And if we are going to give leadership to the industry, what is the best way of telling them what we want? Probably more can be done by us as a body than as individuals. We have suggested in

the paper that perhaps symposia might be held at the R.I.B.A., tying up with industry more closely. It seems to me that would be a good job for the Science Committee to take on. We have got to get technology allied to the other sides of our art if we are to have power and influence. In the modern world these come from technology.

Mr. C. L. S. Mardall [A]: I should like to hark back for a minute to Part I of the paper, as I do not think one can really separate the two parts. There were several references to the low standard of technology in the building materials industry. I do think the quality of building in this country is lower than the quality in most other countries. Unless we believe in the 'new brutalism' we must be vitally concerned about this. We do get to a great extent the quality we are prepared to accept, but the fact remains that you can't get quality if materials are badly produced. That brings us back to the question of technology. Would it be possible for an organisation like the Building Centre, with the help of an advisory panel of architects and the B.R.S., to give a certificate of merit to firms launching or selling materials? The publicity value of such an architects' certificate of merit would be so great that any threat of withdrawing or withholding the certificate would keep manufacturers on their toes, and I think it could also exercise some control over the kind of information they put out. Such an arrangement would be something like that of the Good Housekeeping Institute.

Mr. Allen said he thought one ought to take note of that suggestion. Such an arrangement had been mentioned before, and it wouldn't, of course, take the place of British Standards. Admittedly British Standards did not go far enough in many

Mr. J. O'Hanlon Hughes [F] (Tipperary):

I have come here, Mr. President, to resume a discussion at which you were present back in 1934 when Hilaire Belloc addressed the Architectural Association on Architecture and Civilisation. He foresaw this vast extension of physical science and its depressing effect upon architecture, bringing about this great emphasis on horizontality which we all associate with the Greeks.

I was surprised when I looked at the section 'Materials' of the paper and saw no heading 'Metals' in it. It is the advances in metallurgy which are keeping us on the move in land, sea and air. So I say, don't overlook steel! We must realise that it is the men who are bringing about these developments in the aeroplane, the motorcar and in ships who are pushing us ahead. away from the wet methods, forcing us to think not of construction but of assembly, until the day is coming when we shall be asked to assemble a building and mark every little bit so that it can be taken down and reassembled somewhere else. We have got to realise this. We as architects still have the caveman mentality.

Mr. Howard Kelly [F]: I should like to point out that most of the buildings we have seen illustrated here have been erected by clients not spending their own money; but a great many architects work for people who have to spend their own money, and who don't want to pay for the architect's experiments and errors. (Though we know the A.B.S. offers opportunities for the architect to safeguard himself!)

Also, this new technology makes it necessary to employ specialised consultants, and I am dismayed at the new Scale of Charges, which leaves it open to the client to discuss with the architect who is to pay them. We need a little more definition in the Scale if we are to be able to adopt the

new techniques.

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which, in 1937 which was faced with sheets of up. We coloured glass. The building took fire and the two they fell down so that no one could enter the building to do any rescue or salvage work. Are precautions taken for special fire risks in using these new materials?

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Mr. Mills: Not all the buildings illustrated were built with other people's money. The Lever building, General Motors and several others were not. But as a privately practising architect I must give credit to my clients for once. I have found that if once I point out to them the advantages of a little mild experiment, in the ultimate gains to be made if we build a building to fit in with modern needs, they will go along with me.

One important point is that industrial processes change so rapidly, one can hardly keep pace. One must be able to adapt a building to new processes without tearing the whole thing down. The Architects Co-Partnership have experimented in this way, and their Bryn Mawr factory can be switched around to new processes in a very short time.

Mr. Allen: I don't know much about the question of fire, but Mr. Bevan, my colleague from B.R.S., may perhaps like to comment later. He is very experienced in that field.

Mr. George Lee Greaves [A]: I make no apology for discussing housing, since it accounts for the activities of about half the building industry. Most of you here seem to be engaged in building Lever Buildings, but I am more ordinary and am concerned

with smaller buildings. We are probably moving away from the field of local authority housing into that of private housing. I spent some years doing research on housing for the Ministry of Works, and studied 40 types of private houses, and I found everyone was looking for the same thing—we had to find a material that would keep out wet, support the load and keep warmth both in and out. And everyone wanted to design with steel frames, with cladding outside and sheeting inside. I came to the conclusion that all these systems fell down on cost, and really didn't do anything better than brick had done. We have been using brick very wastefully by taking loads on an inside skin, leaving the outside as decoration. My suggestion is—and we have tried it out -use brick as a load-bearing structure and also as outside skin. This gets over the difficulty of having to finish with wet construction internally.

There are one or two difficulties. The first is that we are up against the interpretation of the bye-laws by local authorities. We have all looked forward to the implementation of the new bye-laws, but the schedule which was put there as an easy way for an inefficient surveyor is now being translated as something entirely necessary.

We are also up against the conservatism of finance. The people who are paying for building are often the building societies, and they must be sure the buildings will last until the end of their lending periods.

Then we are up against the conservatism of the contractor and the men on the site: though I do find that when you have eventually persuaded a contractor of the advantage of being able to build even in spite of wet weather and so save time, you get a good reaction.

Personally, one of the most valuable things I have learnt from this conference is about the new materials shown here. I am particularly interested in the question of putting a coloured finish on brickthough I think a dreadful problem might arise if the colours are not well handled.

Mr. Mills: I agree there is a tremendous field for improvement in housing. The other day I was in a road where the latest batch of so-called architect-designed speculative houses had been completed, and I had the feeling I was back in 1932. There were imitation half-timber, leaded lights and all the other tricks.

There are possibilities other than the cavity wall system. There is the system of building brick party walls, spanning the floors between them, and using factorymade units as cladding. This has the merit of improvement in speed and has been used in Switzerland, where it was developed.

Mr. Howard Lobb, C.B.E. [F]: Mr. Allen has commented on development teams. I suggest that all of us architects are part of that team, and I would ask for your help. Twelve months ago, in a lecture I gave at the R.I.B.A. on the various systems of construction used on the South Bank Exhibition and their problems, I referred to the question of double glazing and the extravagant use of fuel. I said I had heard it said that on a recent job the cost of double glazing had been largely paid for by the saving in the heating installation and of one year's fuel consumption. I threw out a challenge, and said it was up to architects, glass manufacturers, fuel research people and engineers to get together and give authoritative information based on field research. You may be interested to know that Pilkington Brothers have taken up that challenge and have appointed a committee to go into the problem, and I want to ask other architects here who have had any experience of double glazing to let Mr. Allen or myself or Pilkington's know about it and to offer facilities for the research people to take a number of records of fuel consumption over a long period and establish accurately just what savings are effected. I think it is likely to be more than pure theory and small experiment indicates; and if this is so, the cost of production of double glazed units will come down-particularly since it is proposed to get the metal and wooden window people interested.

Mr. Allen: I can't comment in detail on an idea like that, but it illustrates my point that it is development technique which is wanted. Mr. Lobb is lucky to have had his challenge taken up so successfully, and we all wish him well and I am sure will collaborate.

Mr. M. H. Cooke-Yarborough [A]: Mr.

Mills thinks patent glazing is a winner, and he showed a picture of Lewisham Prendergast school. But I don't think it is as simple as that. I have used the same system on a job, and although we carried out a great deal of water testing (and incidentally I think B.R.S.'s water testing is too severe) the water has come in. Perhaps we were just unlucky.

Mr. Allen: Patent glazing should in principle work. Perhaps one must adopt Churchill's admirable phrase and say one must look at difficulties with a view to overcoming rather than stopping in front of them. Actually I think the patent glazing technique is most promising. The principle of draining a joint, rather than trying to form the perfect one, and forming a capillary path instead, is a sound one.

Mr. Jack Blackburn [A]: I am domiciled in the Highlands, and up there we don't seem to be suffering from the trials you have down here. Renderings don't fall off and we have practically solved the smoke problem. In the Highlands there is the old Scottish lime harl. It sticks on the wall very well and never cracks. As to smoke, up there we are building houses without coal fires, so there is no smoke. We heat them by electricity. Of course, we are very lucky to have the Hydro-Electricity Board. and they actually try to sell electricity.

As to cracks in plaster, I suggest the answer is vermiculite plaster. Our local plasterers like it so much they will put it on at the same price as ordinary gypsum plaster. If this material is more widely used, gypsum plaster will die a natural death and the price of vermiculite plaster will come

Mr. Mills: I couldn't agree more. The universal use of thin skins of hard plaster slapped over odds and ends of material is quite the wrong technique. If we are going to use wet interior surfaces of that sort, something of the vermiculite type is going to give better results.

Mr. Allen: B.R.S. has an outlying laboratory in Scotland, and I don't know whether they would confirm that there are no problems north of the Border. They are run off their feet. But perhaps they don't get into the Highlands!

On electric heating in place of coal firescan we afford it? It costs at least twice as much as any other method, probably three or four times, as far as we can see. I am not keen about electric heating myself. I have got floor heating in my house, but I like a coal fire too.

Mr. R. C. Bevan: I am not an architect, and the only reason I have the temerity to stand here is that for a long time at B.R.S. I have listened to or read about the innermost secrets of many hundreds of architects-and I am afraid we haven't heard much about their successes! It would be extremely helpful if we did hear more about them. We usually don't know if a recommendation has been successful in a particular case, but the more often we hear about the successful use of a material or

technique, the more certain we can be of the facts.

One speaker yesterday mentioned, somewhat unsympathetically I thought, the 'smelly laboratory'. Of course, if a modern laboratory is smelly it must go down as another of those failures we hear about, for proper provision should have been made to remove the smells. But to be serious, the 'smelly laboratory' or 'test tube' technique as it is more often described still is and always will be the basic feature of research in physical science. The architect may rarely come into contact with it, and I do therefore want to emphasise now how essential it is to future progress in building research. There were two other items which call for a little further comment.

On the question of fire, Mr. Kelly's example is very relevant at the present time. The building bye-laws do help to avoid that kind of thing, but architects are so progressive that already some are demanding that the building bye-laws should

be revised again.

Comparison was made a moment ago between vermiculite plaster and gypsum plaster. Some plasters on the market are dry mixes of vermiculite with gypsum plaster as the binding agent. They have, therefore, the properties of a normal gypsum plaster modified by the presence of the vermiculite. One feature of them is that they are much lighter in weight than the normal sanded or neat mixes of gypsum plaster, and therefore are less tiresome for the plasterer to handle.

Mr. Mills: I should like to thank Mr. Bevan for his endorsement of our Success Department idea for B.R.S., and I should like to press this idea of passing on information about things that go right.

Mr. Alexander Steele [A]: I have been in touch with B.R.S. in Scotland, and find that the bulk of their work arises from the reduced standards imposed on architects by Government control. One of the things we are asking their help about at present is sound transmission. This problem

is going to be a serious one. As to the future of the profession in relation to these techniques: I see an end of housing in its present form in five to seven years, a substantial end to school building in ten to fifteen years, and, in town planning schemes, a stop to expansion in agricultural country which is going to lead to building and rebuilding in cities. Where then is the work to lie? The hotels of Britain will have to be mainly reconstructed. We will have to turn to the field of entertainment-cinemas, theatres, television centres. Are these new techniques going to be applicable to this type of building? I doubt it. I think therefore we should give more attention to the details of architecture and building, rather than to vast schemes of total construction.

Mr. Allen: We rather left sound transmission out of the paper, because it carries us into the fields of physics and elsewhere. But we have spent an enormous amount of effort in finding out how much people like

or dislike sound transmission. There will be a paper shortly in the R.I.B.A. JOURNAL on this matter, giving the Station's policy. There is bound to be a gradient of standards; not all people react similarly. But generally, people in low-cost housing neither ask for nor want the standards that professional people ask for; people who live in flats probably don't ask the same standard as those in houses; Glasgow is happy with 10 decibels less than London. One can't impose a standard; local habits, environment, etc., will dictate it, and local authorities will have to give guidance to architects.

Mr. Frederick B. Pooley [A] (County Architect, Buckinghamshire): Mr. Gibson has developed a very simple system at Coventry of dealing with manufacturing firms and their literature. He asks their representatives if they will themselves write to B.R.S. about their products and let us see a copy of B.R.S.'s reply. He never sees them again!

Curtain walling really costs little more money than traditional outside skins, and it seems to me we could save a lot of money and afford it if we made more use of

brickwork as internal structure.

Referring to the bye-laws, Mr. Pooley said he thought the sizes of bricks and brickwork should be much reduced. If we were to have a module, let us have the 3-in. brick. It would be a great saving on material and structure.

Mr. Mills: We have no particular stake in curtain walling. We are, in fact, interested to see the advocates of this and traditional building doing the best they can with their own methods.

Light cladding might cost more initially, but the reduction of structural weight in the frame and also the speeding up of erection could save money; also the reduction of the total load of the building could save on foundations.

Mr. Kenneth R. Emmett, A.R.I.C.S. [4]: There is perhaps an intermediate method between the traditional method and that of curtain walling. I refer to 'no-fines'. In my office we are building eleven-storey flats in no-fines construction, and there is no doubt that it is very much cheaper than structural steelwork, reinforced concrete and load-bearing or reinforced brickwork. We are hoping to let, in approximately two years' time, 3-bedroom flats for thirty shillings gross, which is equivalent to the rent of a two-storey house.

There are parts of the country where there is no room for two-storey houses, and so we must build upwards, and we must build homes that people can afford.

There are certain disadvantages at the moment. For instance, there is the appearance of no-fines. Then it does permit driving rain to penetrate to a certain extent, though that is reduced when it has a spar covering, and there is now a graded panel, precast, being manufactured, which forms a permanent shuttering to no-fines construction, which gets over the great disadvantage from the aesthetic point of

view. No-fines construction also reduces the acoustics problem.

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Mr. Allen: As to sound insulation, a number of houses were built by the Ministry of Works after the war, some of 9-in brickwork, some of 9-in no-fines. Although they had very different weights, all had the same sound insulation. Most people do like about that level of insulation in low-cost housing, though it is not what we would all like to see.

Mr. C. S. White [F]: I take some interest in the question of bye-laws, since I took a modest part on the committee at an early stage of drafting. The aim is to make them less restrictive and more flexible, to frame them so as to call for performance standards which may be interpreted with reasonable flexibility, rather than to give permissive methods of achieving that standard. The interpretation by local authorities all over the country is bound to be varied to some extent.

I have always been puzzled why some of our colleagues regard the more scientific aspects of building with serene and tolerant detachment. It seems to me unpardonable and silly. Anyone who attacks his job like that is a menace, and ultimately it will cause serious trouble. Anyone who sets up to build is undertaking a grave responsibility in spending other people's money. I should like to pay my tribute to this brilliant paper, and to say that one can't separate the constructional aspects from design.

I know that rain behaves in a most extraordinary way in America. It goes uphill! But last year I was staying at Sidmouth, and it poured with rain all the time I was there. I looked out at the slate roof of my hotel, which had a 45 deg. pitch, and the rain appeared to me to ascend from the gutter and disappear over the ridge!

I am a great believer that we should use timber very much more intelligently than we have in the past, and preserve it, and we should widen our field of selection of soft woods. These are sometimes neglected because of certain alleged defects, but these can be overcome and life prolonged.

I should like to have the views of the authors on prestressed concrete members. I have found it difficult, when using precast and post-tensioned members, to keep them straight. They are apparently not perfectly aligned when they come out. On a big industrial job that may not matter, but if precision is asked for I am doubtful whether some types of prestressing will give the elegant shapes we have seen on the slides.

Mr. White also made a plea for the use of more suspended ceilings, which are much used in Sweden. He had found that by cutting out *in-situ* plaster and decoration he had been able to use a suspended ceiling with little extra cost. He thought the unorthodox seldom was cheaper than the traditional method, and we must watch that when spending other people's money.

Mr. Mills said in reply that however good bye-laws were, we were dependent on their interpretation, and the problem was to educate the interpreters. He was wholly in favour of suspended ceilings, which in

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reduces America had almost wholly superseded the use of wet ceilings applied to the structure. An additional advantage of the suspended ceiling was that it provided a ready-made cover to service pipes. As regards cost, the additional expense of putting in a suspended ceiling was small, and when one took into had the account the saving in maintenance and repairs, he thought there would be a credit

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Mr. Allen said he had just received a note from Mr. Blackburn on the subject of floor heating, saying that he estimated the cost of hot water, cooking and lighting to be £1 a week per house. A great deal, of course, depended on the cycle of occupation. Electric floor heating had been tried in schools in the northern part of the country and the cost found to be very high, but that would not necessarily be so in the case of housing. This should go to the new B.R.S. Success Department. He hoped Mr. Pott would say something about the system of prestressed concrete construction mentioned in the paper.

Mr. Anthony Pott [A] said that he could not make any generalisations about a method of building in which the first building was not yet completed, but it looked promising so far.

He wished, however, to utter a word of warning; one could have very slender members of prestressed concrete carrying loads, and that small members must be regarded as comparable to steel as regards their behaviour in fire rather than to reinforced concrete. Free-standing members were being encased in fibrous plaster to improve their fire-resistance.

As regards vermiculite plaster, Mr. Pott said one could get cracks in it, but he thought there was enormous scope for it. He had heard of at least four astounding cases on the west coast of America where it had been used in place of more conventional concrete casing for steelwork, and because of the reduction in dead load the savings in money had been enormous.

He was disappointed there had not been more emphasis on light-weight concretes in the paper. He thought these materials had enormous potentialities. Those who tried them, it was true, often ran into troubles, but those were largely of their own making. They had not considered the materials' properties carefully enough before using them. He hoped they would be developed. There had been great interest in them after the war, but this seemed to have died away, and he could not think why.

The problem he was going to raise with the authors, Mr. Pott said, was that of mastics. The main component of all mastics seemed to be magic. We can't specify mastics, he said, so what can we do? We can only put ourselves in the hands of the three or four firms in the whole country who know their stuff on mastics, explain what it is to be used for, and take what they give. This is very unsatisfactory. There is very little study being made, as far as I know, on the fundamental problems. Next time the authors speak we shall expect them to tell us more about mastics.

Mr. Allen: I am afraid so far the mastics situation is rather discouraging. It has been in my mind to ask my colleagues at B.R.S. to 'step on the gas' and get us answers to this problem. It depends, of course, on whether the element of magic is too big. But Mr. Martin Briggs has said that the occult is the speciality of B.R.S., so we may be able to get somewhere.

Mr. Mills said there was the possibility of an alternative to mastics. He thought Saarinen had been on the right lines in using extruded rubber members which performed the same function, but this needed the tests of time and experience.

# VOTE OF THANKS

Mr. C. H. Aslin, C.B.E. [F]: It is an easy task to propose this vote of thanks to Bill and Ed, or perhaps I should say Flanagan and Allen. Their paper has been the most successful ever heard at a British Architects' Conference. In addition to the scope and the stimulation of the paper we have had an exhibition of the technique of delivering a paper. Most people perhaps on reading it would have found it hard to believe that it would keep people animated for five hours. We owe a great debt of gratitude to our two friends for the brilliant way in which they approached it. We have also had our President as genial chairman, and that stimulated all of us.

B.R.S. has sometimes been looked upon as a kind of graveyard-a place where you go for half a day and come away feeling it is unsafe to build with anything. You may in fact remember, at yesterday's meeting, some comments on the cracking of a stuff they cover walls with. My wife said to me, 'Isn't that particular rendering what we have got on our house?' We nearly left at once! But I should like to state my personal indebtedness to B.R.S. They are within hailing distance of me. They know of some of our successes-and they have been combined ones, because we have asked the help of B.R.S. before we have done things. They have both the capacity and the willingness to give architects an enormous amount of help.

Mr. Aslin went on to say that some very kind references had been made to him, but he in turn must acknowledge his debt to his colleagues. The only thing I have done, he said, is to run a combined operation-but, of course, within the next year or two I shall no doubt find it can run on its own! Mr. Richard Sheppard [F]: I am very glad to second this vote of thanks to the authors of the paper. Unlike some of you, I read the paper. It had more balance than we have had in the discussion. We have paid more attention to some aspects, like curtain walling, and rather less to other materials which the paper discusses. I really think you should read it.

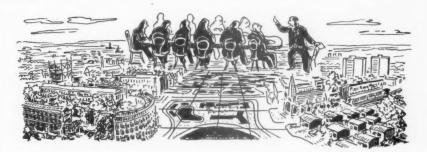
For my part I read it with feelings of anguish. On every page I found that we had made some mistake which we could have avoided. And there is a moral here. Yesterday Allen referred to the failure of brick firms to carry out research, and that goes for other materials, too. There were complaints about the information served up to us and the way materials arrive on the site. I think we get what we deserve. We are not sufficiently educated as a profession to cope with present-day techniques. Our education is still in the stage of dealing with craft techniques. We don't teach building science sufficiently in the schools of architecture. A Report was prepared on this years ago, during the war, by the Architectural Science Board, of which Allen was a member, but I can't see that any schools of architecture have ever taken much notice. If we could improve the teaching of building science in the schools it would do much for the architects of the future.

As for us, I don't know what we can hope for. Manufacturers can serve up whatever rubbish they like and we are not in a position to argue.

Mr. Sheppard went on to say that he would like to see many more meetings like those we had had at the Conference, arranged at the Institute and elsewhere, where talks would be given by qualified people. The building materials manufacturers should be there.

He thought that insufficient stress had been laid in the discussion on the very poor quality of present-day site management and procedure in building. Very few builders, clerks of works or firms really went out after a good job because of the difficulty of getting labour to do what they wanted. Builders, he said, must be more highly trained and efficient. Until then we should just go on muddling along. It was up to architects as a profession to show the building industry and manufacturers what we wanted.

Finally, Mr. Sheppard thanked all the speakers who had helped to provide such an interesting discussion.





# Speeches at the Conference Dinner

Palace Hotel, Torquay, 26 May The President in the Chair

Mr. Vyvyan Salisbury [F], President of the Devon and Cornwall Society of Architects, proposed the toast of 'The Borough of Torquay'. He said that during the prepara-tion for the Conference the Society had come into close contact with the civic authorities of the Borough of Torquay, who were so ably guided in their affairs by His Worship the Mayor, and he was very glad to have this opportunity of expressing their great appreciation of the thought that had been put into everything and the most efficient way in which it had all been carried out. In spite of the number of conferences dealt with in Torquay, they had been made to feel that this was the Conference. He hoped that in return this formidable array of architects would favourably impress the Borough and make them feel that their generosity had been worth while.

He thought the civic authorities were much to be congratulated on the way the town had been built up without spoiling its natural beauty. Obviously the Borough must have given a great deal of thought to each step before they made it. He had heard a rumour that the inner harbour was to be filled in to make a car park, and as a visitor he could not help feeling that this would be a mistake. There was something very attractive about the sight of little craft in the harbour—it was the kind of thing we went to the Continent to see—and he hoped some other solution could be found.

The railway strike, he said, had naturally caused some concern and might have shattered all the carefully laid plans for the Conference. Personally he was at a loss to understand the railwaymen's attitude. The directors of British Railways, wishing to provide every convenience for their menas is the fashion nowadays—hit upon the brilliant idea of providing a bona fide excuse for the men to be away from home every now and then, and even provided lodging money so that they would have more to spend on enjoying themselves. There are some, said Mr. Salisbury, who cast around in their minds to arrange just such conditions, and men have even been known to commit murder to achieve their ends. One wondered whether the gentlemen of the footplate really knew which side their bread was buttered!

Mr. Salisbury thanked the editors of the various journals for the very excellent write-ups they had given the Conference organisers, and in particular for the most original photographs and descriptions which had appeared-whether or not this was all just a little 'soft-soaping' in preparation for the caustic remarks that would follow after the Conference he would

not like to say.

The Mayor Elect of Torquay, Councillor White, responding, apologised for the absence of the Mayor and Mayoress of Torquay. The Mayor had unfortunately been taken ill—he had lost his voice and had been ordered to remain silent for 48 hours. He thanked the Conference for the honour they had done Torquay in coming there and hoped the architectural profession would continue to maintain its respected position in our public life.

The Right Reverend The Lord Bishop of Truro, proposing the toast of 'The R.I.B.A. and its Allied Societies', said: I am really rather envious of the Mayor. It would have been very convenient indeed if I had lost my voice tonight. But after the first shock had worn off I was very glad to be asked to propose this toast, and to have the opportunity of thanking you for your

My father once proposed to me, when I was havering and in doubt, that I should become an architect. What would have happened if I had done so I don't know.

I was glad to be asked to propose this toast because it took my mind off what you might call ecclesiastical chores. I wouldn't swop the vocation to which I have been called for any other. It is a wonderful thing to be called to do and has some most glorious things about it. But it also has some very unpleasant ones. I often ask myself why I should be called upon to be at one moment business manager, at the next a kind of selector for a test team; often an estate agent; and on very rare occasions an inspector of nuisances!

But being asked to propose this toast enabled me to wander about in the field of architecture, not with any professional eye, but I hope with something of the wonder of a child. I have enjoyed it very much indeed, and these are some of the things that passed through my mind:

I have never forgotten reading a little book by Professor Lethaby about architecture. Having thought there was nothing older than Gothic, I was taken back to Egypt and pre-history, and realised what a tremendous history there is behind this noble profession.

There is also the essentially social character of architecture. You may sit by the sad sea waves and paint pictures for the pleasure of it or to mystify your fellowartists. You can enjoy a solo in the attic if you are a euphonium player. But an architect has to put his building on the ground. His work is of a human and solid character and brings him into touch with his fellow-beings. For we must house the ordinary man, we must have schools and hospitals, which change the whole character of the surface of the earth and give it dignity and beauty. The fascination of this fusion between function and ornament came home to me; it seems to me it is a study which could carry you on for the whole of your life. I often think that some modern buildings look as if, like so many of our damsels, they had had their eyebrows plucked. Even that is a form of beauty which you can learn to appreciate!

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I pass on these thoughts to you in honour to your noble profession. And in proposing this toast I associate with it the name of your President. I am astounded at the details of his professional career, at the range of his knowledge and at his versatility: a wide knowledge of European architecture, hospitals, churches, hotels, pavilions, flats, private houses, and interiors of large ships-how I should like to be able to design the inside of a liner!

For all these things we honour your profession.

Mr. Howard Robertson, M.C., A.R.A. S.A.D.G., President R.I.B.A., responding said: I am most grateful to the Lord Bishop. I wish that he had been an architect. He has got the principal qualification, to be humble in spirit. I found him eminently sympathetic. And I for my part should like to have been a bishop.

We have had a superb Conference. The Devon and Cornwall Society has excelled itself. The Allied Societies are the branches which keep the parent trunk alive. Every President of the R.I.B.A., after a certain period, comes to realise that basic truth. It is to the Allied Societies we owe what strength and vitality we have-we hope we have some vitality!

Our Conference membership has been spritely, and spice has been added to it by the presence of three American architects -Mr. Stetson, Mr. Bray and Mr. Montgomery. From Australia we have our old friend Professor Leslie Wilkinson, and from Tasmania, Mr. Blythe. From Dublin we have the gentleman who this morning made his mark as a comic turn. We have had wisdom and wit combined. Bill Allen and Edward Mills have, I think, made history in Conferences.

I have been impressed recently by an investigation which one of our alert architectural journals has made into the qualifications of architects who may or may not be elected to Council. These prospective candidates have been given a questionnaire which they have been requested to answer. The questions were very searching, and the members' views on policy were also sought. But I suggest this inquiry into their views on policy is entirely misdirected. What we really want to know is what sort of men they are—what their architectural views are. We want to know the man as an architect, and not what his policy is. I could have suggested a series of questions which might be asked, and I will give you now one or two suggestions:

(1) Can you draw?

(2) Do you do your own elevations? (3) Can you keep a secret or do you tell

(4) Do you ever read (a) Council agenda, (b) the R.I.B.A. JOURNAL?

(5) Name two good modern buildings in London.

(6) What do you understand by neo-Georgian?

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(7) Have you ever said in your career, Why doesn't the R.I.B.A. do something

And, finally, some general knowledge questions: What is meant by 'The new brutalism?' Insensitive detail? Cliché?

M.O.H.A.L.G.?

The President then thanked the Lord Bishop for his speech and all those whose hard and effective work had made the Conference such an outstanding success. He also thanked the Mayor Elect for taking the Mayor's place, and sent affectionate greetings to the Mayor and Mayoress.

Mr. Harold Conolly [F], proposing the toast of 'The Guests', said that he thought that in a sense the architects gathered there were all guests, and the real hosts, besides the Devon and Cornwall Society, were the County of Devon and the Borough of Torquay. He said: This lovely county, so famous in prose and verse and song, so famous for its beauty spots, its historic buildings, for its seamen, its cider and clotted cream, is the real host, and we are fortunate to have been able to hold our Conference in such beautiful surroundings. We have been made more than welcome with real friendship and hospitality.

Since no mayor or deputy mayor, said Mr. Conolly, ever went unattended, the deputy mayor had brought with him his town clerk and the mayor's secretary. And, of course, no British Architects' Conference banquet was ever complete without a bishop, or perhaps a dean—plain or coloured. He continued: Throughout our long history the church has always been an important patron of architecture. May it be so again. I hope each new town and housing estate will have a large and magnificent parish church. And I hope in due course the Church will alter the meaning of the old phrase and send architects to Coventry! Until then our profession will have to make do with captains of commerce, barons of industry and local authorities. And you, my Lord Mayor of Plymouth, represent a very big housing and rebuilding scheme which my profession all over the world is watching with great interest. You have the good wishes of all architects and all members of this Conference.

Mr. Conolly went on to say that since no architect could ever really face his public without his surveyor by his side, he was delighted that they had present Mr. H. B. Kauntze, President of the Devon and Cornwall branch of the R.I.C.S. Architect, surveyor and builder should work as a team-as had been stated in the Report of the Joint Committee on Tendering Procedure; all three were to sit on the new Joint Consultative Council. That Council had some good people on it-Mr. Aslin; and himself! He said he thought

the Joint Consultative Council a very good idea—but had just learned that there had been one in Torquay for twenty years! If Torquay had any other good ideas he hoped they would pass them on to London.

He greeted the visitors from the U.S.A. and thanked Mr. Stetson for his valuable contribution to the discussion that morning. He also greeted Mr. Pembroke Wicks, Registrar of the Architects' Registration Council of the United Kingdom, and said that never had so nice a man written so many nasty letters.

After mentioning other distinguished guests, Mr. Conolly concluded: Will you see to it that a properly qualified architect is employed for every job, whether large or small. Will you see he is given proper instructions and plenty of time to do his job properly; and, within your financial budget, given as free a hand as possible. Having briefed him, have faith in him, because that will pay dividends every time.

The Lord Mayor of Plymouth, Alderman E. W. Perry, replying to the toast, said he was a very new boy, for he had only made his inaugural address a day or two earlier. Wondering what he should use as an opening sentence in that, the most important speech of his life, he had looked at the President's Inaugural Address of last November and had felt he could not do better than use its opening paragraph. He had done so, and a lady present had afterwards described it as 'gorgeous'.

He felt it, he said, a very great honour and a pleasure to represent the guests. Before attending the Conference he knew very little about architects except as a member of the finance sub-committee of the Reconstruction Committee, in which capacity it was his pleasant duty to sign a large number of cheques. He commiserated with architects on the lowness of their fees! But being a prudent fellow, he had looked up in the dictionary the meaning of the word 'architect'. There it had said that the word came from 'arkitekton, meaning workman'. That obviously couldn't be right, so he had looked farther. And then he had found the perfect description of an architect as the 'custodian of standards, a trustee for his clients' interests; he must be a psychologist, and understand all men and some women'. He thought those words must be familiar to many of those present. The President's Inaugural Address had been full of such gems of wisdom, and he thought no harm would be done if he went on to repeat them. The President had gone on to say that an architect must be presentable, clean, cultivated and knowledgeable. Looking round the gathering, he saw that architects were certainly presentable, and they were accompanied by the most charming bevy of ladies he had seen since he became Lord Mayor.

He referred to the reconstruction of Plymouth now going on. It had been undertaken with the help of gifted architects and he thought that it was leading the whole country in reconstruction.

He said he thought the old forms of architecture had gone for ever, and a new



At the Informal Reception. Mr. Harold Conolly [F], County Architect, Essex, Mr. Richard Sheppard [F] and Mrs. Conolly

form must be created. He went on: We are going to create in Plymouth the biggest controversy as to the future architectural merits of our proposed new civic centre. Someone has described it as 'a glass tower of Babel'. But some of us regard the plans for that new civic centre as a young man's plans, and I am backing them to the limit; because our young men in the profession have, I believe, a worthy life before them, providing they will create. If they will do that, then bring their plans before us who have watched the development of the older types of architecture, tell us why they want this new form and what benefit it will be over older forms, then I am quite sure that not only the Councils will back you but that the overwhelming majority of the ratepayers of this country will follow you as well.



At the Informal Reception. Mr. F. R. Yerbury, O.B.E. [Hon. A], Director of the Building Centre



# Architectural Journalism

# By Ian R. M. McCallum, A.A. Dipl. [A] and Ian Murray Leslie [Hon. A]

Papers read at the R.I.B.A., 18 May 1954. The President in the Chair

Mr. McCallum:

AT MY FIRST INTERVIEW with the principal of an architectural school where I wished to become a student I was told, in a tone as discouraging as possible, that the successful architect combines business man, lawyer, engineer, mathematician, diplomatist, philosopher and plastic artist. Granted a successful fusion of these several skills I might expect to retire, at the age of 60, with £30,000—1937 values. The passing of time has added to the skills those of the town planner and civil servant, and if Professor Gropius has his way it will add those of the manufacturing industrialist and building contractor. So far as material considerations are concerned the passing of time has tended rather to subtract than

I use this illustration to start a discussion on journalism, because it is this human hold-all, this much more than Renaissance man that the architectural journalist and his periodical live to serve. And it is these skills and the practice of them that one looks to see reflected in the weeklies and monthlies. But before we examine the present let us look very briefly into the

pre-journalistic past.

In the Middle Ages building technique and design was evolved within the various guilds, with injections from time to time of fresh inventions and styles from abroad. With the gradual emergence during the 17th century of the professional man via science and the stage a new learning was acquired in a new way. Now the young would-be professional might find a wouldbe ruler of taste to take him on the grand tour, or if he could afford it might go on his own. Later he could publish some measured drawings, or a pattern book of designs. The popular pattern books which were soon to achieve large sales were the precursors of the periodicals.

The great increase of the profession at the beginning of the 19th century, the revolutionary changes that were taking place in building technique and the cheaper and more efficient methods of printing together gave birth to architectural

journalism as we know it.

As far as I have been able to discover, the first architectural periodical was published in Berlin in 1829, to be followed by J. C. Loudon's ARCHITECTURAL MAGAZINE in 1834 and César Daly's REVUE GÉNÉRALE DE L'ARCHITECTURE in 1840. None was to appear in America until the beginning of the 'seventies. Loudon's magazine will serve to indicate the nature of architectural journalism at this time. One of his stated intentions in publishing it was to 'popularise architecture (especially amongst ladies)

and make the patrons more conscious of what is going on'. The full title was 'The Architectural Magazine and Journal of Improvement in Architecture, Building and Furnishing and in the various arts and trades connected therewith', a comprehensive aim which he pursued most thoroughly for four years, when he decided that he had done all that was necessary and closed it down. As a small indication of how far he was from achieving this I would like to quote, without comment, a short passage from the last volume, of 1838: 'During the late frost, almost every family in England has suffered from an evil which might have been very nearly, if not entirely, prevented by a very simple precaution, and at very inconsiderable cost; I refer to the freezing of water in pipes. On the return of mild weather, the pipes, in most cases, have burst, and great injury has been done to property and health. The writer then goes on to explain how easily the pipes might have been lagged.

In the intervening years, a large number of periodicals appeared and disappeared. In 1907, for instance, there were 15 different architectural magazines imported into the country from America, and 20 different ones from France. Unfortunately, I have no time tonight to investigate the fortunes and misfortunes which brought the well-entrenched few to the positions they so

securely hold today.

Since we have chosen to divide this talk into two, and since my colleague, Ian Leslie, is concerned with a weekly and myself with a monthly journal, I shall consider chiefly the problems of the latter. But first you may want to ask why we need both anyway, or more particularly why weeklies, when most countries seem to get by perfectly

well without them?

The chief reason is, of course, geography and density of the architect and builder population. A country the size of the United States or Canada clearly cannot produce a weekly technical journal with a nation-wide distribution; the costs would be far too high. And countries like France and Italy would seem not to have sufficient backing from advertising of the kind that supports the weekly journal. There is, in fact, no other country in the world that produces weekly architectural journals on the scale and with the vigour and commercial success that we do. The reasons for this do not come within my terms of reference, but it is worth mentioning because it largely determines the character and scope of the monthly magazines.

I had thought in preparing this piece perhaps it was the well-concealed architectural diplomatist thinking it—that it would be wiser to discuss so controversial a topic as journalism with calm objectivity, to keep to such guarded expressions as 'certain monthly journals' or 'a well-known publication that frequently concerns itself with the visual aspects of town-building. But the ill-concealed journalist intervened and suggested that it might make better listening to talk about the thing one knows. to talk about it openly, and to indulge in generalisations only when the temptation to do so becomes too strong to support. I will, therefore, largely confine myself to the kind of architectural journalism you find reflected in the pages of THE ARCHI-TECTURAL REVIEW, and know I can confidently look to Ian Leslie to redress any unbalance that this may cause in the evening's entertainment.

THE ARCHITECTURAL REVIEW, in the process of doubling its pre-war circulation, has also increased the variety of opinions that are held about it, a number of them amusingly fanciful. It has been called a libel-sheet in Moscow, an architectural event in the Ukraine, the rudest thing since Charles Dickens's American Notes in New York, and a lesson in typographic vigour in Washington. In Britain it has been called whimsical and over-serious, preoccupied with history and over-zealous for the contemporary, propagandist and insufficiently enthusiastic. Its chief virtue, one admirer said recently, 'lies in providing something for British architects to rally

against'.

The history and aims of the magazine I will not tire you with; they have been exhaustively described in its pages. It has been told how, by methods nefarious and other, it helped modern architecture to infiltrate this sceptred and conservative isle, so reluctant to become the seat of MARS: and later, when the battlefield spread to town and country, how misjudged were the intentions with which the road to a new

MARS was cobbled.

As I suggested before, what is most often forgotten in considering the monthly magazine is the weekly one. It would clearly be ill-advised, with weekly architectural journalism as popular and efficient as it is in Britain, to attempt to provide a similar service by the month. Now what is it that the weekly journals do so well? They provide news, they digest technical information from all sources; they assess technical developments, they compete to illustrate new buildings first, they provide working details for chaps to copy and planned information to save them time; they discuss conditions of work, salaries, ministerial decrees, the purpose and value of the R.I.B.A. and so on.

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There is no reason, of course, why they shouldn't also cover the wider field of aesthetics, criticism, history, architectural belles-lettres, travel, townscape, industrial design and other important subjects. In the main they choose not to, however, because they have plenty on their plate already and because there's a limit to what the budget of even the most successful of them will stand. These tasks fall, therefore, to the monthlies.

The picture given by the primarily technical journals is one of a breathless race ectivity, ons as with an ever-increasing output of new materials, methods, equipment and general s itself know-how. Clearly a healthy, if slightly exhausting procedure. One feels that if 75 per cent of architects were able to better assimilate and utilise 25 per cent of this output, our environment would be immeasurably more efficient. Whether it would look better or worse is not the questionat least not a question those journals, lacking the time, the space and the money, can concern themselves with.

> They are the questions, therefore, with which the REVIEW does primarily concern itself. Let us then examine this magazine, and discover what sort of subjects it chooses to consider important and what

sort of emphasis it gives them.

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In 1953, taking eleven issues, and ignoring the special Coronation one, the allocation of space fell roughly as follows: 184 pages were given to straightforward reporting by photograph and word of new British buildings, here and overseas; 126 pages were given to criticism, in one form or another, of contemporary buildings; 80 pages were given to articles of a scholarly nature, on the history of architecture; 71 pages were given to straightforward reporting of new foreign buildings; 55 pages were given to townscape; 51 pages to articles on technical aspects of building; 36 pages to industrial design; 24 pages to exhibitions of architecture, furniture, painting and sculpture; and 16 pages were given to reviewing books.

In percentages this meant just over 75 per cent of the space went to contemporary architecture and design, just under 9 per cent to townscape, and just over 12 per cent to history; the rest going to exhibitions and book reviews.

I present you with these figures largely as an aid to discussion, for I have noticed that strange misconceptions frequently arise as to the amount of space given, in architectural periodicals, to different aspects of the subject. Townscape, in particular, seems destined to attract peculiarly distorted estimates. Perhaps it is due to the kind of emphasis given it, perhaps to some collective guilty conscience, perhaps to a reaction against increasing the overworked architect's already global responsibilities. Whatever it is, the subject seems to have touched a raw nerve and has, it seems, encouraged an idea expressed during a recent discussion on architectural journalism at the A.A. that the REVIEW is frivolous. And yet a magazine more deadly serious about its chosen bees I should have thought it hard to imagine, unless it was one that was also deadly dull, and that would surely defeat all purposes. For if you want English people to take you seriously you either have to make them angry or make them laugh. Not that this solves the predicament, for if you make them angry they stop listening, and if you make them laugh they can't hear.

There is another subject that provokes controversy whenever architectural journalism is discussed, and that is criticism. The analysis I made of the REVIEW'S contents revealed that architectural criticism is looming larger than it has hitherto. Of late there has been a growing demand for it and a growing interest in it. That this evening's talk was originally announced as being about it is, I think, an indication that architectural journalism and architectural criticism are sometimes thought of as synonymous. However, the complex job of illustrating, reporting, analysing, digesting and transmitting that the periodicals are required to do puts actual criticism in its place as merely one of the journalist's jobs; though, I should add, it is not accepted as such by all the journals or the journalists.

For quite some time, indeed since the beginning of the modern movement, it hasn't really been tackled by any of them. It is not very difficult to see why. During the early struggles criticism would inevitably have provided grist to the mills of those who wanted to grind the whole movement to dust; in addition, since there had never been an architecture quite like this before and since criticism is of its essence comparative, a certain time-lag was inevitable during which the objects for comparison

were produced.

The revival of the activity is therefore attended by severe problems. First there are the difficulties of vocabulary in an art which has created a new language of form, then there are the laws of libel (not to mention mere goodwill which, in a competitive world, can mean much to an architectural journalist). On top of all there is the difficulty of being fair to an architect faced both with an increasingly complex science of building and with problems which frequently do not reveal themselves in a brief analysis of his work.

The interpretation and criticism of architecture by verbal means has never been easy at any of its levels, though it has produced works of art in their own right at some and entertaining polemic at others. There are those who maintain with some truth that criticism reflects a state of illhealth in architecture, that it occurs only when the art has ceased to touch the pulse of life. It could be argued, on the other hand, that because an old art form has been largely replaced by a new one, inevitably produced by a professional élite, it is not necessarily a sign of infirmity that it should need interpreting to the public, nor is it necessarily a sign of infirmity that its own practitioners should welcome criticism and comment as a means of maintaining a sense of direction. There is yet another viewpoint which holds that whether architecture is in a good state or a bad, verbal criticism and comment are largely unnecessary; it is better to put all energy into producing and, if needs must, recording it. It's the old argument 'while you talk, I act', the implication being that there is something intrinsically better about the latter activity. Things being as they are today, I can't see that this argument holds any water at all, though it is easy to understand impatience with the excessive amount of newsprint and newspeak that gives rise to the feeling.

Let us, for the moment, accept criticism as a worthwhile activity. If you do it is fairly obvious, I think, that it will have a quite different form and texture if it is for children rather than teachers, television rather than the Third Programme, EN-COUNTER rather than THE ARCHITECTURAL REVIEW, and in any discussion I think it is vital to remember these distinctions.

I will conclude by giving a few reasons why I think architectural periodicals should concern themselves with criticism. First because architects, at least the ones who speak to me, seem to want it-that is until their own buildings are criticised. Second, because the technique is still experimental and the vocabulary inadequate, and it will never improve without practice. Third, because modern architecture has now become contemporary and may even be called traditional, if you don't already call it historical and sometimes classical-in other words, it's big enough to take it. Fourth, because in spite of this the battle is not yet won-take the City of London as only one unfortunate instance. Fifth, because the battle to save and recreate our shattered and squalid environment is only just beginning. Recruitment is slow, morale is shaky and ideals are confused; stirring words are called for and, of course, action.

## Mr. Leslie:

ANY PLEASURE that I may have experienced in anticipation of this evening has, of course, long since evaporated. Too late I have recalled the truth of the adage that a wise editor should stick to the printed word and avoid public speaking like the devil, for if he does and if he selects his contributors and especially his leader writers with care, he stands a fair chance of acquiring a reputation for wisdom if not for omniscience.

To emerge from this protective smokescreen and face this roomful of professional brethren is for me a nerve-shattering experience-for in addition to certain contemporaries who, having secured the seats nearest the door, are by now no doubt fast asleep, it must be remembered that nowadays every architect and student seems to have an editorial blue pencil in the sleeve of his duffle coat in case he fails to surmount the hurdle of the Third Year. Clearly therefore I am face to face with a body of experts.

But the last straw was added a few weeks ago when a speaker in a debate on architectural journalism held at a fashionable seminary for young ladies and gentlemen with an aptitude for drawing, not far from Bedford Square, casually pronounced what sounded like a death knell when he said: Weekly journals like THE BUILDER are

fundamentally newspapers, and it is not their fault if they have little news and that news seldom good'! On hearing that dictum I felt so crushed that I could almost have applied to join that band of bottlescarred veterans who frequent the purlieus of Queen Anne's Gate, for there at least if they have no news they go out and make it!

Architectural Criticism. In one thing I am fortunate. Ian McCallum has dealt so firmly and fascinatingly with the matter of architectural criticism that here he has left me little to do. My own view is that however desirable criticism of buildings may be, it can be useful, as opposed to being good, clean fun and entertaining, only if it is undertaken at the paper or design stage. It is not really helpful to criticise a building that is already up for, as has been well observed, the architect, unlike the doctor, cannot bury his worst mistakes. The only remedy here is to bury the architect, which is sometimes a long-term policy, for that kind of architect (and I dare say we all have our lists) has a habit of being almost as enduring as his art.

One difficulty is really to know from what standpoint to criticise architecture. Criticism from an absolute standard must take the building as it stands and ignore such matters as site, neighbouring buildings, town-planning, availability of materials, cost and client; it must ignore the fact that the architect, alone among creative artists, finds his art conditioned by factors outside his personal choice. I believe that any serious critic must take such factors into account if his criticism is to be helpful, which leads inevitably to the question:

'Who shall be the critic?'

To criticise even a paper design for a building realistically demands full knowledge of the background to the project, which is seldom available. Most criticism fails to be useful because it is done, by men who too seldom build themselves, against an absolute standard; because such buildings as are selected for criticism are invariably of a sufficiently high standard to enable the critic to say at least some nice things about them; and lastly because the place where criticism does most good-in the more liberal and reputable national newspapers—is unlikely to be made regularly available for statements on examples of an art which is, on the one hand, so imponderable and on the other so fraught with risks of actions at law. The editor of an important daily finds trouble enough without going out to look for it. If the day should come when architects' clients invite criticism—as do artists and art galleries, authors and publishers, playwrights and producers—then the situation might be differently viewed by the dailies.

So far as the Technicals are concerned, and certainly the weeklies, the thing isn't on, nor do architects themselves (those at least who have any practice to lose) want it. I well remember a distinguished pre-decessor of mine telling me that thirty years ago he was being taken round a great building (I must not mention its name

except that I can say it was not far from Tower Hill) by its Academical architect, who was urging the need for more architectural criticism to check certain heretical ideas that were even then popping up between the coupled columns. 'I quite agree', said my friend. 'What do you say to beginning with this building, Sir Edwin?' The reply was one which every architect worthy of the name would make: 'I hope you don't think there is anything to criticise in my building?'

If I can sum up my own views, architectural criticism in present circumstances is a dead letter. Let us concentrate on raising our standards of architecture by

other more effective means.

The Functions of a Newspaper. If the functions of a weekly technical newspaper, as I maintain, do not normally include the criticism of current architecture, what are the real reasons for its existence? I have not consulted my colleagues on the three other publications—the ARCHITECT AND BUILDING NEWS, the ARCHITECTS' JOURNAL and the lively ILLUSTRATED CARPENTER AND BUILDER -which appear weekly to the benefit of the architectural profession and the building trade, but I trust I do not wrong them when I say that we all exist to give news.

But first we must exist, and I trust I shall not be accused of coarseness when I say that the first requisite of a newspaper is that it shall pay its way and be solvent. Accounts from papermakers, printers and process engravers, distributors and contributors come in with great regularity; even the staff appreciate payment, and shareholders dividends. To meet these calls a newspaper has only two sources of revenue-the subscription list and the advertising revenue. It is the Editor's job, in consultation with his Board, to devise a formula which will hold the attention of readers and induce advertisers to lend support.

All four weeklies have, no doubt, their own formulae, and I do not wish to surprise any of their secrets. Our own formula was laid down for us in the first issue in 1842 by Joseph Aloysius Hansom; briefly paraphrased it is 'The Building Industry is Indivisible'. That is the background against which all major events are judged, and so far from being a complication it is extraordinary how things and problems fall into perspective when assessed against that

background.

Just one word about advertisements. There are some who profess to find the presence of advertisements in a newspaper distasteful. I never met Sir Banister Fletcher, for instance, that he did not say: 'I like the paper, but why do you have so many advertisements?' The answer is, of course, that advertisements can be news, and the more advertisements there are, the greater the news. Without them you would pay three times the present cost per issue.

The newspaper which I have the honour to edit has passed through many vicis-situdes in the 112 years since it was founded. For the first 75 years of its life it drew upon the services of a number of distinguished architects-Joseph Aloysius Hansom, the founder; George Godwin, one of your Royal Gold Medallists who edited the paper for 39 years; and Heathcote Statham, author of a standard work on the organ and an authority on acoustics, among them. These men brought to THE BUILDER a reputation for fearless judgment and complete integrity, which those who have followed on have striven, not completely in vain they hope, to emulate.

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paper o But they were not journalists, these early deeply editors, though an exception must be made of H. V. Lanchester, another of the Institute's Royal Gold Medallists, who not suf tributio is worse edited the paper for two years from 1910 of ano to 1912; it was THE BUILDER'S loss as it was many a architecture's gain when Lanchester's pracof the t tice in India developed so that he could not nuts o carry on both. Onwards from 1917 the exception editors have been professional journalists, critical and to W. T. Plume, editor from 1918 to tions is 1937, following a period of over 30 years as unless i assistant editor, and to G. J. Howling, editor from 1937-48 (a period of great change and stress in which THE BUILDER. under his guidance, reached its fullest influence) belong the major credit for ensuring that the newspaper, embracing real prosperity after the 1914-18 war for the first time, did not lose either the standing or the authority won for it by its distinguished architect-editors.

I have thought this digression worth while because I want to make abundantly clear that the essential quality needed in a weekly newspaper is a news sense, and that nothing

really replaces it.

News is what an architect lives by-news of what is going forward, news of new materials and methods, news of building prices, news of those other architects who have got jobs. The architect ought to be reasonably sure of being able to pick up the current issue of the paper of his choice and finding illustrated there buildings in the news and the winning designs of the most recently decided architectural competition.

In addition to what may be called 'frontpage' news, there is a whole host of subsidiary information which the weeklist regularly give-among it what other architects are saying about engineers, what quantity surveyors are saying about architects and what builders are saying about all three; R.I.B.A. sessional papers; the latest fireworks at the A.A.; and a varied assortment, depending on the paper, of the

Opinions vary on the value of the gossip column. I used rather to admire the gossip columns of my contemporaries until I discovered that the original Abner fell

latest gossip.

asleep on his job (the tale is told in the First Book of Samuel, I fancy) and that an Astragal is that part of a window which prevents the light from coming through. But here I confess myself to being in a minority, and in any case those are the

features I always look at first.

But there is another side of existence of a weekly newspaper, besides the giving of news, which is important—a side concerned with the expression of opinion by the

industry, and the canalising of that opinion in all matters of moment.

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f your The correspondence column of a weekly paper is one of its most important features, and is the one turned to first by many readers. It is that section of a newspaper which is freely open to opinion of all kinds, so long as it is connected with the building industry, is constructive and not inspired by malice. It is curious, though, how much correspondence comes into every newspaper office from correspondents who feel deeply about the matter in hand, though not sufficiently deeply to sign their contributions. I do not think that the architect is worse than other professionals in his love of anonymity, but it is surprising how many appear to think that the main purpose of the technical Press is to pull their chestnuts out of the fire unaided. Save in exceptional circumstances, no letter of a critical nature either of persons or institutions is allowed to appear in THE BUILDER unless it is signed.

> Correspondence is welcomed by every editor, as part of the necessary process of keeping himself informed of current opinion. It supplements other views that are ceaselessly converging on a newspaper office by letter, telephone and personal interview-views and opinions from every kind of source, some impartial, some less partial, some frankly biased. But it is all of use, and with experience one can strike a kind of resultant of forces from it all which is useful when it comes to writing or setting out the main lines of the leading

> I should like to spend a little time on this subject of leading articles. Building enters the national life at so many points that the subscription lists of the various papers contain the names of many interests outside the building industry-great industrialists, Government departments, municipal authorities, the nationalised industries, Members of Parliament, and not least the national newspapers: the circulation is universal. I have yet to find anyone who has taken out a subscription to a newspaper purely for goodwill, and the reason why papers like THE BUILDER and its contemporaries have been able to exert influence outside the industry is due to three factors: (1) The wide interest in building, especially building costs; (2) the increasing complications of the industry; (3) the reduced size of daily newspapers, which makes it difficult for them to give adequate space to architectural building news.

> And so the weekly newspapers have a dual job to do: to help form opinion within the industry, and then to get that view known and perhaps accepted in the proper places.

> Why should our papers do either? Why don't they stay out of things they don't understand, and mind their own business? That is a point of view one often hears, and the answer must be, that it is the newspapers' business if they really mean to do their job faithfully. Sometimes a newspaper is the only organ that can make a pronouncement, for with all our technical progress our great institutions in the industry often pursue a

singularly unilateral course. (As an example, the architectural profession's besetting sin at the present time is that too many architects think of themselves as members of a building profession but not as members of the building industry.)

That is why the weekly papers give considerable thought and space to their leading articles and why, in those articles, they go to considerable pains to assess a particular situation in the best interests of the industry (not necessarily, mark you, the best interests of the particular profession or trade: the two things are not necessarily synonymous) and then to express it in such terms as are likely to carry conviction in the world outside building.

I would not pretend that the obiter dicta enshrined in those leading articles always give unrestrained pleasure to their readers, or to the institutions which are sometimes referred to therein. They are seldom meant to. It is one of the disadvantages of being the leading institution in any particular field that public attention tends to concentrate on it to an extent that makes a quiet life difficult. Leading institutions should not expect a quiet life, however, and a primary duty of the technical Press is to prick them on to particular endeavours when particular situations demand it.

You must not assume from anything I have said that the technical Press claim that the views they put forward in leading articles are always right. But they are as right and as forthright as the experts in their particular lines who compose them can be, and they are written invariably without bias or malice and with the ultimate good of the industry, and therefore of the particular profession or trade under discussion, always in view. The corps of anonymous but distinguished writers who assist on THE BUILDER know that they must keep their eyes on the hills and the horizon as well as on the ditches at their feet.

If the technical papers do not always command approval, we must accept that as an occupational risk. But I think that even those institutions which are occasionally scolded would agree with THE TIMES which recently said that 'Every great institution finds itself from time to time under the microscope of public opinion. It is a salutary as well as an inevitable experience'

In one respect at least the weekly technical Press have an advantage over national papers—that is in the use of news.

Any technical newspaper which seriously attempts to secure the improvement of the industry it serves has to use its knowledge with discretion. To an editor who does his job and moves around in the industry there are not many secrets of any importance unknown. Those engaged in building are great talkers, and that is something every editor welcomes, as it keeps him in the picture. But at the same time it lays on him a special responsibility to act with discretion. Publicity is a two-edged sword; it can get things moving, or it can kill a movement stone dead. There is no place in technical journalism, in my view, for those who adopt as their motto 'Print and be

damned', and I think that the architectural profession and the whole building industry are, all in all, fortunate in that none of the papers subscribe to that code.

But I would like to kill one belief that, I fancy, is sometimes held: that is, that the technical Press sometimes start hares simply to fill space. This idea is, of course, quite wrong; the difficulty is to find the space for comment that is timely and needed. When a paper is dealing with a whole industry the truth of this will be seen.

Some Phobias. You will already have formed the conclusion that I shall never again be invited to address architects in this place. Like a drowning man, I am now ready to clutch at any straw that will bring me alive out of this room, and my whole life as a technical journalist flashes past me as I think of things I have always wanted to tell architects if only I had the chance. Alas, my time is nearly up, so here are just a few straws, clutched at random as they float

First, I should like to kill the idea that the road to illustration of buildings in the technical papers is other than by the editor's personal choice. I can assure architects (and especially those practising outside London and the Home Counties) that architectural interest, constructional interest or special news value are the only tests applied. I know I can speak for all my colleagues in saying that we all welcome the submission of illustrational material for publication.

What none of us likes is to receive matter which has been sent to all the papers, especially when that fact is not disclosed by the architect. Nothing is duller for the reader than to find the same buildings in all the papers. Sometimes, of course, the building is of such exceptional interest that we can't help ourselves, but generally speaking we try to be different.

A second point I should like to make is connected with the drawing of competition plans. How I wish the average competitor would draw his scheme so that the sheets stand some chance of being read when reproduced in our papers. I know you don't really expect to win, but someone has to (unless you live in Dublin). In any case the assessor isn't born who doesn't appreciate clarity of presentation. Perhaps Mr. Eric Bird, that distinguished technical journalist, can be persuaded to reprint his article from the R.I.B.A. JOURNAL of September 1946, 'Drawing for Reproduction'. Were architects to follow the excellent principles there set out, they would earn the heartfelt thanks of every technical editor.

The third point I want to make is concerned with public relations. I could wish that architects spent less time in building themselves up in public circles as creators of beauty in building (beauty being a quality never more difficult to define than at this present age) and more in creating in the public mind the image of the architect as the practical artist who leads the building team and produces a building within 10 per cent of the estimated cost. I come

back for a moment to a remark I threw in earlier, that architects do not think sufficiently of themselves as being members of the building industry. It seems to me that as the increasing complexity of the building crafts over the last 40 years has produced professions other than the architect's, so the architect is spending too much of his time in battling to retain his place as the leader of the building professions when he ought to be vitally concerned with equipping himself to be the leader of the building industry. This is something which architectural education has not yet fully

And, on a lesser point, will you as architects please stop using that offensive phrase: 'educating the public' member of the public I know nothing that irritates more than attempts to educate me -however much it may be necessary and desirable. I always suspect that those so interested in education are themselves in need of the schoolmaster's attention. Good example is the best means of educating anyone-particularly in architecture.

Now, Mr. President, I have outrun my time and outworn your patience. I have tried, in somewhat general terms, to put the case for the weekly technical papers as we see it; to give you the reason for our existence; and to show you something of the limits within which we must work. Though we may from time to time appear critical of the R.I.B.A. and its policies, I can assure you that this grouchiness thinly disguises a very profound admiration for the Institute, its members and its staff whose major successes, wrought so often behind the scenes, can seldom be publicised. We of the technical Press are proud of being associated with an industry as great as building; our only wish is to assist it towards an era of greater efficiency and greater beauty and to see the architect taking his place as leader of that process by reason of his fitness for that honourable post.

## DISCUSSION

The President: I will call upon Mr. Alan Pitt Robbins, formerly News Editor of THE TIMES and now Secretary of the Press Council, to propose a vote of thanks to the authors of the papers.

Mr. Alan Pitt Robbins, C.B.E: It is a new experience for me to address a distinguished gathering of architects and I therefore ask for your indulgence, but I want to say a word for one branch of journalism about which nothing has been said by the authors of the papers. I think something should be said about the efforts which some daily papers have made to interest the public in architecture. Since the war THE TIMES has given a considerable amount of space to architectural subjects, and it would have given more space to them if there had been a larger supply of newsprint. We always felt on THE TIMES that the public should be kept informed about architecture, and I think that some of the most beautiful things that we have had in THE TIMES in recent years have been reproductions of architects' drawings, such as plans for the rebuilding of the Temple. I do not want you to have the impression that architecture is neglected

by the daily newspapers.

I want to mention also that I am particularly pleased to be in this building, because your Institute honoured my opposite number on THE TIMES, my very great friend Ralph Deakin. Some of you may remember an exhibition of photographs of his and I think nothing gave him greater pleasure in the last years of his life than his election as an Honorary Associate.

At the present time I am engaged in a very delicate architectural job, the building or designing of a Press Council with very little material and with no protection from the law. We are starting from scratch, and I can assure you that the most careful planning is needed.

· Sir Hugh Casson [F], seconding the vote of thanks, said: I am very glad to join Mr. Pitt Robbins in paying a tribute to my old friends Ian; I find it rather difficult to distinguish between them in their wit and wisdom, but I think that both of them are unduly polite. Everybody knows that architectural journalists hate and despise architects. They find us ignorant, because we do not read their papers. They find us fussy about the way their papers present our buildings. They find us very ungrateful when they take some notice of our designs, and they find us indescribably vain in the numbers that we order to distribute to our friends. Yet if you ask any architect what he thinks of any architectural paper you will find that his answer is unenthusiastic. and if you ask any architect whether there is anything in the current issue of the ARCHITECTURAL REVIEW or the ARCHITECT AND BUILDING NEWS OF THE BUILDER he will always say 'No' unless there is something in it which he has designed himself.

I think that the two Ians (if I may so call them) were unduly modest about their profession. If you look at the record of architectural journalists you will find that it includes men who have done more for architecture than a very large number of architects have done. Let us think of a few names of the last hundred years. Pugin, Ruskin, Morris, Lethaby and Le Corbusier have all done. I should say, more for architecture than a great number of architects have done. If we go down one grade, Statham, Trystan Edwards, Robert Byron, Betjeman, and many of our current celebrities, such as Summerson, Richards and Jordan, have all worked very hard and have all done a great deal for architecture. Some of you may be old enough to remember the blood-stained 'thirties, when, if it had not been for the architectural papers, architecture as we know it today would probably not have survived. You may also remember the days of Chipperfield and Ruislip and what tremendous support we had from the architectural papers at that time. They fought in the past for the arts and crafts movement, for the Gothic revival, and back farther still; they were loyal to architecture, and if that involves loyalty to architects in the process, let us could be throw them in as well. What architect can architect look back on so good a record?

we shoul On the question of architectural criticism, I think Mr. Leslie said he thought it was a dead letter and that, if it was applied at Mr. H. all, it should be kept to the paper stage BUILDER unites t while the buildings are still on the drawingboard. I think that there is something to be journalised for that hat I do something to be said for that, but I do not know that | siderable agree with Mr. Leslie that one must know member everything about a building before one can architec criticise it fairly. I have always rather wel-I do n comed the idea of criticism and felt it very keenly when I have had it myself. But on architec the whole criticism does not do us any harm, although it can very easily knock the that mu in inter heart out of somebody. I do not think it is necessary for a critic to know all about the and in architect's problems. If I go to the theatre I am not very interested if I hear that ten are tied minutes before the curtain went up the stage manager's trousers were on fire or the leading actress's husband ran away with somebody else. It is terribly sad, but all I am interested in is whether the play, as I see it, is up to the standard which I am

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expecting, and by which I criticise it. I think one difficulty about architectural criticism is that an architectural critic probably knows a large number of architects and it is very difficult for him to criticise the work of friends. We know that very often the nastiest buildings are done by the nicest people. I think this is something that probably affects critics in all the arts. A book critic should never know an author, a drama critic should never know a dramatist, and an art critic should never know a painter, because, if a critic says that something done by a friend of his is nice, it is thought that he says that because it was done by a friend of his; if he says that it is nasty he wounds a friend's feelings, and, if he ignores it, it is the same as saying that it is nasty. I therefore think that the difficulty of architectural criticism arises when the critic knows the person who has produced the work that he criticises, and that is why I support anonymity in criticism. I think that the literary criticism which we most respect is that which appears anonymously in papers like the LISTENER and the times literary supplement, when we do not really know who has written the criticism. Often we suspect, but we do not really know.

With regard to leaders, I think Mr. Leslie is unduly optimistic in thinking that anybody reads them. I am sure that most people in reading their daily newspapers turn last to the leaders. Probably most people look first at the correspondence or the obituary notices or the sports news and read the leader last, if they ever read it at all. I suspect that in the case of architectural journals the leader is the last thing that people read and that they very seldom

have time to read it at all.

I very strongly support Mr. Leslie's appeal for the death of the phrase 'educating the public'. That is an insulting and priggish cry which we often hear in this hall, where people say: 'If only the public

, let us could be educated to realise how important architecture and artists are, how much better it would be! As Mr. Leslie says, we should start with ourselves.

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plied at Mr. H. A. Cox [Hon. A] (Chairman of THE BUILDER, Ltd.): Our subject this evening r stage, rawing unites two professions, architecture and journalism. I suggest that there is considerable similarity between them. That that 1 statement may surprise you. I speak as a t know member of the general public. I am not an one can architect; I am a chartered accountant. er wel-I do not know all that goes on before it very architects' drawings appear in the journal, But on but from my position I can very well judge us any that much time is spent in correspondence, ock the in interviews, in planning and re-planning, nk it is and in costing and competition. I know out the that architects have their restrictions. They theatre are tied and perhaps prevented from doing nat ten what they want to do by the conditions up the which they have to fulfil, by cost, which is or the limited, by the area to be covered, by the y with surroundings, by the site, and by laws and regulations. When we of the general public but all lay, as see the final production, whose is it? Not ı I am really the architect's. It is the builder who produced the building which I see. I see ectural his name on it, and it may be that I do critic not see the architect's name anywhere im to

What does the editor have to do? In very much the same way, much of his work is carried on unseen even by the Board. I refer to his work in connection with planning, correspondence, interviews. especially for conferences, exhibitions, the New Year's number, costs, and reporters. Editors also have their restrictions; there are restrictions on the number of pages. that they may occupy in relation to the whole issue, on the quality of the paper that they use and on the cost of the illustrations, and they have a time-table to which they must adhere. We always say that we make no enemies, but there is one enemy that we always have to face, and that is Time. I think that very few people realise how much time has to be given to selecting reports and such-like from the very many associations and institutions which look to us for some notice. There are over three hundred professional institutions that might claim our attention, and there are over three hundred institutions connected with the industry. Then, with regard to the production, when you had that issue in your hands last week, who produced it? Did the Editor produce it? No, the printer produced it, and, as you read it, you give little thought to the Editor and all those who have striven to collect the news that you want to read. Therefore, you see, there is a similarity between these two professions.

I became connected with THE BUILDER rather more than forty years ago, and from the first I learned the maxim that the chief duty of an editor is to edit and not to write. I do not say that an editor should not write at times on certain subjects. I have known the work of seven editors of THE BUILDER. Four of them were architects, and they wrote but they did not edit; the editing was left to the staff, because these architects had had no training as journalists. Both architects and journalists are specialists in their own fields; the difficulty is to combine the two. When Dr. Lanchester was appointed in 1918, during the first world war, we had for the first time a practising architect, and what happened? He had a call to go to India to help with New Delhi; he was called again to Italy, and then once more to India. One cannot keep on with a plan of that kind, and I well remember that it was my suggestion to the Board that we should depart from the tradition that the Editor of THE BUILDER should be an architect and that we should appoint a journalist instead, so Mr. Plume was appointed. He had been on the staff for some twenty years, and he served for fifty years altogether. I am sure that we never regretted that step, and it has never, as far as I know, been questioned. Yet I can quite understand that there may be some here who would say: 'Surely you must have an architect as Editor of an architectural journal.' I leave it to you to say whether you would like an alteration in the system that we are carrying on today.

Mr. H. A. N. Brockman [L]: All the speakers who have mentioned architectural criticism have implied that they regard architectural criticism as something rather destructive, because otherwise why should people be so afraid of it? But surely architectural criticism is really a very constructive activity, and I should have thought that architectural papers and newspapers would welcome criticism of a constructive kind. If the critic starts by trying to find out what the architect was trying to get at and then decides whether he has got at it, and then relates the result to the best work of this time and then, if necessary, to the best work of all time, surely he is doing something that is truly critical and at the same time is helping the cause of architectural appreciation.

I would add that I fully agree with Sir Hugh Casson's plea for anonymity, because with anonymity, which is a very wellestablished journalistic tradition, I think we get better criticism.

Mr. Stewart Nicholson: Sir Hugh Casson said that people do not read the leaders or, at any rate, do not turn first to them. I think that two exceptions to that are the leading articles in the DAILY MAIL and the fourth leader in THE TIMES.

Mr. F. A. Ruhemann [F]: I also feel that criticism of architecture is very important; indeed, I think it is more important than criticism of any other art, because this art is forced more than any other upon the public, and its products are more permanent, or, at least, they are supposed to be more permanent. I feel that many deterring examples should be published and that photographs should be shown of bad buildings, with detailed and substantiating criticism for the benefit of the uneducated public and also for the benefit of the younger generation of architects. Some of the examples should be of prominent buildings. However prominent and however expensive they may have proved to be, they should be exposed if they are bad.

Mr. Thomas Mitchell [A]: I am sorry to cross swords with Mr. Leslie on the subject of architectural criticism. I am in favour of architectural criticism, but I think that such criticism should not be concerned only with aesthetic matters. The proportions, the colour, and so on are but one part of the total design, yet one seldom sees intelligent architectural criticism which takes into account the constructional features, which must be good if a building is to look good and to serve its purpose well. Mr. Leslie very wisely referred to raising the standard of efficiency of buildings, and I think that good criticism, which embraces the points that I have mentioned, is an essential way forward; it applies in most other cases and has proved valuable. But even if one were to regard only the aesthetic side of the matter I should still disagree with Mr. Leslie. Buildings can be judged without inquiring into the back-stage effects from the point of view of their setting on the landscape or fitting into the street picture. Nobody needs to know anything about Post Office problems in connection with Faraday House, for example, to be able to criticise it.

Turning to another matter, I have often thought that I should like to live in America or some other country which has only monthly magazines. Often when my ARCHITECTURAL REVIEW arrives on my desk I think how nice it would be just to have that and to be able to read it for a whole month if only I had the time, but I never have the time, because I have so many weeklies to read as well. I think there is a great deal to be said for the monthly. I am lost in admiration of the way in which the weekly papers manage to get out on time, with so much accurate and useful information of all sorts, but, however carefully it is put together, I wonder whether, if the editors had three more weeks to think about a matter, it could not be pruned down a little and put more usefully in front of us. Are we all better architects in this country for having these weekly journals, or do we build much better in this country than architects build in America because we have them? I very much doubt it. I often compare American and other foreign publications very unfavourably with our own. I think that the architect in America is very badly served by his publications in comparison with ours, but if we had only monthly journals there would be no need to lower their standard. I think there is a good deal to be said for Mr. Leslie digesting his material a little more thoroughly and giving it to us at monthly intervals. It might be at the expense of the space and interest which could be devoted to townscape, but that is a problem with which no doubt the ARCHITECTURAL REVIEW is very well able to deal.

Mr. J. L. Owen: I speak as a member of the public. My business is the furnishing

and decoration of houses and other buildings. I should like to say what a privilege it has been to me to listen to the papers this evening; I found them fascinating.

Sir Hugh Casson took great exception and, I believe, most people here take exception to the idea of the public needing education in architecture, and I am not going to say anything one way or the other about that, because I really do not know; but if I, as a layman and as one who is really ignorant about architecture and building from a technical point of view, can enjoy the ARCHITECTURAL REVIEW, the ARCHITECT'S JOURNAL and THE BUILDER SO much, surely if the general public could be persuaded to read them, or if some monthly or weekly periodical of an architectural nature could be produced for the general public, it would be a great advantage. I feel that there is all this wonderful wealth of architectural journalistic brilliance available which the public are missing, and I think we should try to find a way of putting them into touch with it.

Mr. W. D. Bryant: We have heard something this evening about leading articles, and I am reminded of one which appeared in a newspaper that has been mentioned this evening on the morning of the General Election not very many years ago. It began by saying that the country went to the poll that morning because a particular political party at a particular time had lost its capacity for creative thinking. I do not think it can ever be said that the technical journals in the building industry have lost their power of creative thinking. One has only to look at the correspondence columns and the leading articles and feature articles which appear week by week and month by month to realise that anyone who wants to know anything about the building industry or the architectural profession must read these newspapers and journals at some time, and he cannot afford to let too long a time pass by without spending some time on the contents of these publications.

I think that architectural criticism in the technical journals is probably a good thing. I agree with Mr. Mitchell that it could go into more detail than it does, but I feel that that will not be done until those who write the criticisms, whether under their own names or anonymously, do a little designing themselves.

With regard to the last point that Sir Hugh Casson made, that the authors of the interesting papers which we have heard this evening were unduly defensive, Mr. Leslie has said that the building industry, which, of course, includes the architectural profession, is individual, so if the authors were unduly defensive they may very well have been speaking only for themselves.

Mr. A. Llewellyn Smith, M.B.E. [F]: I do not agree that we have too many and too frequent issues of the architectural papers. I myself always look forward to Friday. and I look forward with perhaps slightly less emphasis to Thursday, when one of the rival publications appears. I have been known to go upstairs after hours and borrow a copy of the REVIEW from one of our assistants, who is better able to afford it than I am. I do not pretend that I read these publications from cover to cover. but there is always something stimulating and interesting in them and there is always something in them that one wants to look at.

With regard to architectural criticism, I am not sure whether I understood Mr. Leslie to say that it was entirely out of place. I listened the other day to a symposium to which I believe Sir Hugh Casson sometimes contributes, and I heard a lady speaker of great distinction make an adverse comment on the subject of a competition scheme and then reveal that she did not know whether it was a hospital or a hotel. She had a perfect right to make that criticism, because she has to look at the building, whether it is a hospital or a hotel, and I think that the public have a right to make their point of view heard. It is a little daunting for the architect, however, if his products are written down without anybody knowing in the least what function they are supposed to perform. I understood Mr. Leslie to say or to mean (and, if he did, I agree with him) that criticism of architecture, at any rate in the informed technical papers, must be founded on a knowledge of the problem which the architect was expected to solve, the means at his disposal for the purpose, the conditions of the competition, if there was a competition, and so forth. I think that the architectural papers can and do fulfil that function.

Mr. H. V. Lobb, C.B.E. [F]: I should like to make a suggestion on architectural criticism, so far as certain fields of architecture are concerned. I think that much could be learned by the profession as a whole if a school could be criticised, after it had been in use for about a year, by the head master or the staff who work in it rather than by another architect, whether or not that architect was anonymous and whether or not he had built any schools. I wonder whether the authors, to whom we have listened with so much interest, think that there is anything in that idea.

Similarly, in the case of a factory, it would be interesting to know what the production engineer thinks about the job and generally to get the whole field of technical background, because, by so doing, I think you would be able to assimilate as part of his appreciation, which would not, I hope, be too eulogistic, the original terms of reference of the architect and how in fact he had been able to carry them out.

Mr. Ian R. M. McCallum: I agree with Mr. Lobb so far as the question of criticism by laymen and technicians is concerned. I think it would be fascinating to hear what the schoolmaster thought of his school after he had been in it for a year, and what a technician on a job of building production thought about the architect's designs.

With regard to aesthetic criticism versus technical criticism, the point was made that there is some danger and some un-

fairness to architects in merely criticising Rev the appearance of buildings, and to certain extent that is so, although Sir Hugh Casson, I think, answered this point rather well in his speech. On the other hand, the look of the building is what most people his section have to put up with. They are not real concerned about how the building stand the Direct up or even whether it is waterproof. The majority of people just have to take The Office buildings as they are, and I should have the Direct said that that made a case for straight telep forward aesthetic criticism for a good dea the Direct of the time, particularly in the daily news Telep papers and in journals which are read by the Direct the general public. It is really exactly the same argument as that which Sir Hugh the Direct Casson used about the stage manager's trousers catching fire. People do not care what happens to produce the result, but hey care very much about the result powers they care very much about the result powers the whole thing should be gone into invery much more detail, and I think the readers are interested in the articles that are more thorough. On the other hand. I think it should be realised that it is an immensely complicated and long task to analyse a building in detail, and to understand all the difficulties that beset the architect in designing and building it. This leaching Casson used about the stage manager's architect in designing and building it. This should really only be done, I think, in the case of buildings of the very first importance. Most journals cannot spend the spection time and money on doing it for all buildings In si county on which they would like to comment.

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With regard to the point that was made Part 4 about critics who do not build themselves classes; I do not think that is a point that can carry with bo very much weight. It is excellent, I think with ge when there is an architect who can write boarding and take the time to analyse other architects | An work in detail, but it is extremely difficult Regula to find any architects who will do that the Re It puts them into a very invidious position and mo with their fellow architects, and it is a taining position in which the independent critic is while a not involved.

for free Sir Hugh Casson said that Mr. Leslie constru and I had been unduly defensive. If what Sir Hugh said about the architects' opinion that in of us is true, I think we should have been Septem well advised to come here in bullet-proof objects waistcoats or not to have come here at all!

Mr. Ian M. Leslie: I am in the happy position of finding myself in agreement with nearly everything that has been said educat this evening.

I do not think I said that architectural the de criticism was no good. I simply said that it the lay was not on, nor do I believe it to be on It was tried twenty or thirty years ago. Charles Reilly used to tear buildings to pieces in the MANCHESTER GUARDIAN and the LIVERPOOL POST, but that was very soon vided stopped. The point is that, until architects more and building owners invite criticism, ways architectural criticism does not stand in the same street as theatrical criticism and book criticism, which are invited.

Mr. Mitchell asked whether we are better architects because we have weekly architectural papers. My reply to him is that we might be worse.

## Review of Construction ir Hugh and Materials t rathe and, the

People his section gives technical and general information. The following bodies deal with specialised to treat branches of research and will willingly answer inquiries. stand The Director, The Building Research Station, Garston, near Watford, Herts.

Telephone: Garston 2246.

o take the Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow. o take in Office in Charles and its control of the Charles and

Telephone: Princes Risborough 101.

od dea The Director, The British Standards Institution, 2 Park Street, London, W.1.

Telephone: Mayfair 9000.

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read by the Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1. ctly the Telephone: Museum 5400 (10 lines).

Hugh The Director, The Scottish Building Centre, 425-7 Sauchiehall Street, Glasgow, C.2.

Telephone: Douglas 0372.

ot care standards for School Premises. Under allt, but sowers conferred by the Education Act. outs, but bowers conferred by the Education Act, 1944 (a), the Minister of Education has made Regulations which may be cited as the Standards for School Premises Regulations, 1954; they came into operation on 36 April 1954. hand

Part 1 gives definitions of terms; Part 2 t is an ask to deals with county and voluntary primary under schools, with areas of site, dimensions of set the paved areas, playing field accommodation, it. This leaching and classroom accommodation in the and halls; storage, sanitary and washing st im accommodation; staff rooms, medical inand the spection and accommodation for meals.

ildings In similar manner Part 3 deals with county and voluntary secondary schools; s made Part 4 with nursery schools and nursery selves classes; Part 5 with special schools; Part 6 n carry with boarding accommodation; and Part 7 think with general requirements for schools and write boarding accommodation.

hitects' An explanatory note (not part of the lifficult Regulations) states that in certain respects that the Regulations have been made simpler osition and more flexible, with the object of maint is a taining adequate educational standards, ritic is while at the same time giving more scope for freedom and experiment in design and Leslie construction and for savings in cost.

what Circular 273, of 23 April 1954, explains pinion that in revising the previous Regulations of September 1951 the Minister had three -proof objects in view: (1) to remove certain at all anomalies which have become apparent with increasing experience; (2) to reduce happy requirements and so lower costs where this ement can be done without abandoning sound n said educational standards and without narrowing the scope for variety and experiment in ctura the design of schools; and (3) to simplify that it the lay-out of the Regulations for the conoe on venience of those who have them in constant use.

The Circular points out that the Regulaand tions no longer require a hall to be pro-SOOD vided in every infants' school, thus giving nitects more scope for experiment in different icism, ways of meeting the requirements of the in the infants' curriculum. The minimum requirebook ments for the one and two form entry sizes of secondary schools have been reduced, better and reductions have been made in the archiminimum requirements for the playing at we fields in most secondary schools; these will be explained fully in the forthcoming Building Bulletin No. 10, New School Playing Fields.

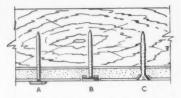
Circular 274, of 23 April 1954, deals with limits of cost for new schools, as the revised minimum areas of teaching accommodation for primary and secondary schools involve consequential alterations in the current formula for calculating limits of net cost.

The two Circulars and the Regulations can be obtained from H.M.S.O.

Plasterboard and Aluminium Insulation. Plaster has some use as a material for thermal insulation purposes; for instance, if applied to a solid 4½-in. brick wall it reduces the thermal transmittance or U-value from 0.64 to 0.57, and aluminium foil is an efficient substance as it is a good reflector of radiant heat but a poor emitter, but it is of value only in conjunction with an air space as it cannot reflect heat if it is in contact with solid material on both sides, and a simple experiment will prove this. If a piece of aluminium foil is placed against the cheek no sensation of warmth is felt, but if it is held about ½ in. away a warm feeling will be experienced, because the foil is reflecting back heat from the cheek, and as the effect is due to reflection it is obvious that the efficiency of the metallic foil does not depend on its thickness, as is the case in ordinary types of insulating materials. The optimum width of the air space is about \( \frac{3}{4} \) in., above that width the insulating value remains practically the same, whatever the distance may be.

The combination of plaster and aluminium foil should therefore provide a product of value for thermal insulation purposes and one such product is called P.P.G. Insulating Gypsum Plasterboard; it is a plasterboard faced on one side with aluminium foil, and one use of it is to fix it as the ceiling to the top storey of a house with the foil side facing the roof space, when it will reflect the heat passing to it between the ceiling joists from the roof space in the summer and so help to keep the house cool, and as foil is a poor emitter of radiant heat it will tend to conserve the internal heat of the house during the winter. Tests show that P.P.G. insulating gypsum plasterboard is non-inflammable and fire-

resisting.



Special nail (c) for fixing plasterboards

The board is available in lengths from 6 ft. to 12 ft., in widths of 2 ft., 3 ft. and 4 ft., and in thicknesses of \$\frac{1}{4}\$ in., \$\frac{3}{8}\$ in. and in.; it can be used as a base for plaster or for direct decoration, being supplied according to the purpose required.

The makers strongly recommend that a specially-designed nail should be used for fixing gypsum plasterboard, as tests have shown that it is undesirable to use a largeheaded clout nail. If the clout nail is driven just up to the face of the plasterboard, as shown at A in the accompanying illustration, it is not only unsightly but exposes a large area of metal to the plaster coat with a possibility of non-adhesion; if it is driven through the paper liner, as at B, it punches out the liner and weakens the fixing. The special nail has a jagged shank for good fixing into the timber support, its head is only 1 in. diameter and it is countersunk at an angle of 45 degrees, so that when the nail is driven home the paper liner is not punched out but is merely displaced to the shape of the head, as is shown at C in the illustration.

The P.P.G. insulating gypsum plasterboard is made by Messrs. Plaster Products (Greenhithe) Ltd., of Greenhithe, Kent.

Clipsham Stone. It appears that reports have been published to the effect that owing to the closing down of the Clipsham Quarry Company, Clipsham stone is no longer available. The JOURNAL understands from the Rutland Masonry Works of Peterborough that although the Clipsham Quarry has closed the stone is still being quarried from the adjacent quarry of Messrs. George A. Medwell and Sons of Clipsham, and is available for any contracts that may require it.

Electric Conduit Tubing. The General Electric Company Ltd. announce that they have perfected a polyvinyl chloride (P.V.C.) conduit tube which can be used in electrical installations where severe corrosive conditions exist, as it is resistant to most acids, is not affected by damp, oil or grease, and may be buried in the ground, or in lime or cement. It is lighter than steel or aluminium, is non-inflammable, does not split or fracture, and remains rigid in temperatures up to 140° F.

When the tubing is used in conjunction with malleable iron or pressed steel conduit fittings they should either be coated with P.V.C. or painted with a special coating of chlorinated rubber, to give a completely protected system with uniform resistance to corrosion. The tubing complies with the I.E.E. wiring regulations for non-metallic conduit. The address of the G.E.C. is Magnet House, Kingsway, London, W.C.2.



The Tentor reinforcing bar

Tentor Reinforcing Bars. To the architect who has been in practice for more years than he perhaps cares to remember the term reinforced concrete no doubt calls to his mind a picture of concrete in which plain round steel bars have been embedded in strategic positions; he may also have an uneasy feeling about cracks on the tension side of beams. Progress, however, has not ceased in the field of reinforced concrete, and a new type of reinforcing bar is now being manufactured in England under licence from the Danish patentees; it is called the Tentor bar.

The bar is first hot rolled as a round bar having two parallel longitudinal ribs and transverse diagonal ribs arranged in a herringbone pattern; it then undergoes two cold workings; a longitudinal stretching process and a twisting process which increase its strength, and this procedure of tension and torsion is the origin of the name Tentor. The arrangement of the transverse ribs is such that the sectional area of the bar is uniform throughout its length, while the projection and spacing of the ribs produce high bond stresses between the steel and the concrete.

Those who wish to know technical details about the proof stresses and ultimate strengths of Tentor bars, with a reassuring note about cracks, should apply to the licencees, The Tentor Bar Company, Ltd., 43 Upper Grosvenor Street, London, W.1.

Soil Survey Procedure. Under this title the Road Research Laboratory, D.S.I.R., have published their Technical Paper No. 15, which is a second edition of the one published in 1949. The new edition emphasises the importance of mechanical boring, which in recent years has become more widely used for ascertaining information about the soil and ground-water conditions which will be found during the construction of a road or an airfield.

One of the tables gives soil classification and its interpretation, with group symbols which show by prefix and suffix the main soil type and its sub-divisions; thus GW would indicate a coarse-grained gravel well graded, with little or no fines. The seismic and the resistivity methods of soil survey are explained.

The paper is published by H.M.S.O., price 1s. 9d. net.

Kitchen Showrooms. Showrooms are now open at 149 Regent Street, London, for the display of 'Leisure' kitchen equipment made by Messrs. Wallis & Co. (Long Eaton) Ltd., who registered the trade name 'Leisure' when they began to develop stainless steel sinks in 1933. The exhibition comprises kitchen equipment for installations of various sizes and prices, and includes wood and steel cabinets, stainless steel sinks and drainers, and porcelain enamelled 'Culsynks'.

It has been said that the average British

housewife spends most of her time in the kitchen, and according to a survey made by a German lady American housewives spend 49 hours a week in housework and German housewives 68 hours, but then the German households cannot usually afford the complete mechanical equipment and automatic devices enjoyed by the Americans.

Specialised showrooms are a useful supplement to the invaluable Building Centre, for no amount of literature can equal the benefit of inspecting an appliance in 3-D.

Difulite. In new or in reconstruction work it is often wished to hide the various service pipes running along the constructional ceiling or roof. There are available one or two systems which provide a suspended ceiling below the level of the pipes, and one of these is called Difulite. It is made in panels with strips of thin plastic-coated aluminium, about 2 in. apart, and between the strips run similar strips bent into 'wave' formation. The ends of the panels have edging channel pieces which can be holed to take suspension hooks, or the panels can be supported on extruded aluminium tee-sections.

With lighting units suspended above the panels an 'egg-crate' diffusion effect is produced, with a cut-off at an angle of about 45 degrees, and if the lighting units require attention any panel can easily be removed for access. As the panels are of open construction sprinkler heads can be hidden from general view without interfering with their action.

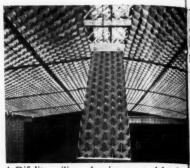
The maximum size of the panels is 30 in. wide by 84 in. long; their lengths decrease in 4-in. steps and their widths in 2-in. steps. The thickness is 2 in. and the weight 4 oz. per sq. ft. Special multi-colour effects can be obtained by spraying the panels in four colours. Difulite is made by Messrs. Metal Sections, Ltd., of Oldbury, Birmingham.

The Common Furniture Beetle. The British Wood Preserving Association, of 6 Southampton Place, London, W.C.1, have issued their Leaflet No. 7, which deals with this beetle, Anobium punctatum. The leaflet tells us that although the natural home of the insect is in the decayed parts of trees, it is usually found as a pest of old furniture and in the structural timbers of houses, particularly those more than 20 years old. The timber is destroyed by the larva and not by the beetle. In the comparatively dry conditions existing in houses the larvae may spend two or three years or more in the wood before pupating.

An insecticide may be applied by brush, or by spray where the timbers are not very accessible, but the atomiser type of spray is not suitable.

The leaflet, and a list of suitable insecticides, may be obtained from the B.W.P.A., free of charge.

Dry Rot and Woodworm. On 12 May the Minister of Works, the Right Hon. Sir David Eccles, K.C.V.O., M.P., opened at the Royal Sanitary Institute an exhibition showing the effects of dry rot and woodworm. Actual specimens of dry rot were



A Difulite ceiling, showing a panel let dow of the st for access to services above

on view, and these were more informativ SCALE than the best photographs as the natura The new colour of the fungus could be seen.

The activities of the beetle family-th death watch, the house longhorn and th powder post beetle-were shown by exhibits which included large-scale 'models' of larvae and beetles; a somewhat unnerving sight from which it was a relief to turn to the actual-size specimens.

The exhibition has been organised by made, 1 the Royal Sanitary Institute in conjunction 15 per e with the D.S.I.R. and it will remain open until 17 July, admission being free.

In this connection readers may be reminded of relevant Forest Products Research Laboratory leaflets; No. 3 on the powder post beetle; No. 4 on the death watch beetle; No. 6, dry rot in buildings; No. 8 on the common furniture beetle, and No. 14 on the house longhorn beetle. These leaflets may be obtained from the F.P.R.L., Princes Risborough, Bucks.

B.S. 2465: 1954. Aluminium Fixing Accessories for Building. The requirements are given for materials and dimensions for hook bolts and nuts, drive screws, washers for roofing sheets, and roofing bolts and nuts, including gutter bolts. The Standard has been prepared in view of the increasing use of aluminium cladding for building purposes. Price 2s. 6d.

B.S. 2460: 1954. Drawing Instruments for Drawing Office Use. This Standard covers drawing instruments and their nomenclature and specifies the materials that should be used. Price 2s. net.

B.S. 1991: 1954. Letter Symbols, Signs and Abbreviations. Part 1. General. The number of available alphabets and founts is too limited to allow any symbol to be reserved solely for the representation of a single quantity, but the Foreword states that it would be a great advantage if the mon fundamental physical quantities were always represented by a generally agreed set of symbols.

Most of the symbols have highly specialised meanings, but architects may note that B.t.u. is recommended instead of B.Th.U. It is also recommended that large numbers be grouped into threes with a space between, thus 10 000 000 and not 10,000,000, because on the Continent comma is used in place of the decimal point Price 6s. net.

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# Practice Notes

Edited by Charles Woodward [A]

IN PARLIAMENT. Air Raid Shelters. Asked what instructions he has given to local authorities about the removal of airraid shelters built by them in private gardens, the Home Secretary replied:-Local authorities have been advised that all sound existing shelters should be retained and that demolition at public expense should be undertaken only where there are exceptional circumstances, such as danger to health or danger of collapse et dow of the structure. (6 May 1954.)

CONDITIONS OF ENGAGEMENT AND rmativ SCALE OF PROFESSIONAL CHARGES. natura The new Scale, which was published in the April JOURNAL, became effective on 1 June ly-the and applies to an Engagement between and the Client and Architect entered into on and vn b after that date. The Scale is not retronodels spective and an Engagement made prior to at un-June will be governed by the Scale then elief to applicable.

The following amendments have been made, the first being the abolition of the

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Clauses A.5, 6 and 8 have been redrafted and the difference can be seen by comparing them with clauses 1(e), (f) and (h) of the previous Scale. Clause A.10 in the new Scale is not a new clause as the e death wording was contained in 1(f) of the previous Scale.

Clause A.11 is a new clause and removes any doubt as to the basis of the Architect's

om the remuneration.

The note at the head of section B of the ng Ac Scale enables charges, in addition to the percentage charge, to be made for all ements prints and other expenses, except for the ons for vashers two copies of the contract drawings ts and supplied to the contractor and the drawings referred to in clause A.6. andard

B.1(iii) of the new Scale takes the place of 2(g) of the previous Scale; and B.1(iv)

is the previous clause 2(d).

B.2 is an important clause as it requires prior written agreement between Client and Architect in respect of the works described in sub-clauses (i), (ii) and (iii). By complying with the terms of this clause mis-

understanding can be avoided.

ns and Clause B.3, relating to partial service, is umber a revision of the previous Scale. Subis too clause (iii) is new and provides for an interserved mediate stage between sketch design and working drawings. Sub-clause (v) provides hat it for the case where the work is abandoned more during the preparation of the working drawings and before their completion. In order to determine the fees due to the Architect, two-thirds of the appropriate ighlypercentage on the estimated cost is taken, may and from that amount is deducted the cost ad of of bringing the drawings and other parlarge ticulars up to the working drawing stage. ith a This sub-clause is based on the Court's not interpretation of the R.I.B.A. Scale in the case of Thomas v. Hammersmith Borough Council. (All England Law Reports, 1938, volume 3, part 3.) The cost of bringing the drawings up to the working drawing stage is calculated on a quantum meruit basis.

B.4 prescribes the time for payment of the Architect's fees. The payment is to be made on the completion of each stage of the Architect's work, and sub-clause (iv) makes it clear that at the working drawing stage the two-thirds fee is payable less any payments made on account. Under the previous Scale the payment up to the working drawing stage could be deferred for six months if the project was not abandoned or deferred during that period.

B.5 describes the additional services to be paid for over and above the charge under B.1, and the charge is based on quantum meruit. These services include negotiations arising out of an application for any approval required in connection with the project. Inspections and reports on property under B.6 are chargeable on auantum meruit.

B.7 provides for payment in respect of litigation at the rate of a minimum of 14 guineas per hour on the time occupied. Arbitrators are recommended to base their charges on the total time occupied at the rate of 3 guineas per hour.

The charge in respect of dilapidations under clause B.8 is in accordance with the

Scale of the R.I.C.S.

If, under clause B.9, the Architect wishes to make a charge for travelling time, this is subject to *prior written agreement* between Client and Architect.

Time charges under B.10 are made at a minimum rate of 1½ guineas per hour exclusive of charges for assistants' time.

The note at the head of clause B takes the place of clause 8 in the previous Scale which dealt with Expenses.

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. Loans for purchase or repair of houses and flats. Circular 42/54 dated 4 May addressed to housing authorities in England and Wales urges them to exercise their powers under the Small Dwellings Acquisition Acts, 1899 to 1923, and the Housing Act, 1949, to make and guarantee loans for the acquisition or construction of houses and flats, and to make loans for the repair, improvement or conversion of housing accommodation. Under these Acts an advance up to 90 per cent of the valuation of the house may be made where the freehold value does not exceed £5,000.

The Minister has been in consultation with the Associations of Local Authorities and the Building Societies' Association, and the Appendices to this Circular give

his conclusions.

There is evidence that some local authorities in valuing a house do not look so much to its market value as to its investment value. Other authorities seem to relate the valuation of the property to the status and financial standing of the intending borrower. This suggests some confusion of thought since it is the percentage of value to be advanced, and not the valuation itself, which prudence requires to vary with the credit-worthiness of the applicant. To value the house at less than its market value and then to offer less than the maximum permissible percentage of that valuation through excess of caution is to erect a double barrier to the applicant's realisation of his object.

As the services of the District Valuer are not available to local authorities for these valuations, it is suggested that (a) the services of such qualified valuers as may be employed by local authorities in the county could be shared by all of them and, if these were not likely to suffice, (b) the collective intention of services of specified surveyors in private practice in the county might well be considered. A suitable fee would be recoverable from the borrower.

The circular can be obtained at H.M.

Stationery Office, price 6d.

**BUILDING LICENCES. Issue of Licences** to Shopfitters. Speaking at the annual dinner of the National Association of Shopfitters, Mr. J. R. Bevins, M.P., Parliamentary Secretary to the Ministry of Works, said that there was no doubt that during the post-war years the shopfitting trade was much hampered by licensing control. In 1953, however, the Ministry granted more than 90 per cent of applications, to a volume of more than £2,000,000, and very few applications were declined. This year it had been even better. During January, February and March not a single application had been refused and if the same rate went on there would be nearly £3,000,000 worth of shopfitting work licensed during 1954. This was, of course, exclusive of shopfitting in connection with new shop building which, in blitzed cities and elsewhere, was being licensed much more

Mr. Bevins stated that the Government did not like licensing any more than the shopfitters did. Over a large area it was now a formality and it was only because the building trade was overtaxed here and there that licensing remained. He declared that the Government would get rid of it as soon as they could. They would do so because it was their belief that industry should not be hemmed in by needless restrictions and should enjoy as much room

for manœuvre as possible.

LICENCES FOR NEW HOUSES. To make it simpler for people to get a licence to build a house of not more than 1,500 sq. ft. in area, the Minister of Works has decided that a plan of the house need not accompany the application for a building licence which must now be made to the Ministry's Regional Office.

Plans must always be sent to the local authority for bye-law approval which is required quite separately from the building

licence.

The licence when issued by the Ministry will refer to the plans submitted to the local authority and will also indicate the size of the house in square feet as given in the application form which must be filled in.

It should be noted that although application for a building licence may be made before bye-law approval is given, the building licence in no way takes the place

of bye-law approval, which must be separately obtained from the Local Authority. (M.O.W./51/54. P.1.49.)

HISTORIC BUILDINGS AND ANCIENT MONUMENTS ACT, 1953. The first annual reports of the Historic Buildings Councils for England, Scotland and Wales have now been published.

The Councils advise the Minister of Works on the making of grants towards the repair or maintenance of buildings of outstanding historic or architectural interest or their contents or adjoining land. They also advise the Minister on the acquisition of similar buildings or contents or adjoining land, on the making of grants towards the acquisition of buildings under Section 41 of the Town and Country Planning Act, 1947, by local authorities, and of buildings of outstanding historic or architectural interest by the National Trust.

The Councils' other duties are to advise the Minister on the preparation of a list of buildings of outstanding historic or architectural interest, to report on the general state of preservation of such buildings and to advise on ways of finding new uses for them.

In England 72 applications for financial aid were received up to 31 December last, of which 53 were from the occupiers of the buildings responsible for their maintenance.

Grants have been recommended in respect of five occupied buildings amounting to £10,650, and other applications are still being considered.

The Council for Scotland have recommended grants totalling £4,100.

The Council for Wales received 14 applications for grants by the end of December, some of which have been recommended and others are still receiving consideration.

Applications should be made by letter to the Secretary of the Council and should give some details of the expenditure towards which a grant is required. If a single grant to meet the cost of a particular work of repair is needed, the nature of the repairs and the estimated cost should be If a continuing grant towards general costs of upkeep is desired, the total outgoings over, say, a five-year period should be given, sub-divided between structural and internal maintenance, upkeep of gardens and maintenance of furnishings. The applicant should state the amount of grant required.

The Reports are obtainable at H.M. Stationery Office, price 6d. for the English Report and 3d. each for the others.

PLANNING APPEAL UPHELD. Glasgow Firm given Permission to Extend. The Secretary of State for Scotland has given his decision to uphold an appeal by Messrs. Millburn Motors, Ltd., of 51 Millburn Street, Glasgow, against the decision of Glasgow Corporation to refuse planning permission in principle for the erection of a building for storing motor vehicles.

The company propose to erect a permanent building adjacent to their existing premises which the Corporation admitted were modern and could reasonably be expected to have a very long life.

The Corporation refused planning permission, however, because in their view the proposals conflicted with their own proposals contained in the Development Plan for the early re-development of the Royston area for housing purposes-the actual site was proposed to be used mainly for a secondary school.

In giving his decision the Secretary of State indicated that while he wished to give every encouragement to the re-development of the Royston area it was nevertheless his view that such re-development must inevitably commence in the area to the west of Millburn Street except in the main for the property contained in the hollow square bounded by Millburn Street, Hollybank Street, Forrestfield Street and Kilberry Street, and that having regard to the condition of the bulk of the remaining property to the east of Millburn Street re-development of that section would necessarily be a very long-term project. He noted from proposals which had recently been under consideration by the Corporation for the re-development of the Royston area that the major part of the property on the east of Millburn Street was to remain undisturbed and he presumed, therefore, that the Corporation also took the view that re-development of the Royston area would take place in the first instance on the west of Millburn Street.

In these circumstances and having regard to the estimated long life of the existing buildings used by Messrs. Millburn Motors Ltd. in connection with their business, and to the fact that the capital cost of the proposed additional building would be a small proportion of the sum which would be payable in respect of the existing buildings and disturbance of business in the event of the firm ultimately being required to remove from their existing premises to make way for the re-development proposed to be carried out by the Corporation, the Secretary of State felt that he had no option but to sustain the appeal.

Note.—This case is significant in that it is an illustration of the principle which the Secretary of State has set out in his decision on the Glasgow Development Plan-that adaptations or extensions of existing industrial undertakings in areas zoned for residential re-development are not automatically ruled out, but may be approved on the detailed merits of the developments proposed.

## LAW CASES

Cary v. City of London Real Property Co. Ltd. Alleged obstruction of light by proposed building. (10 May 1954, Chancery Division.)

This was an action by the plaintiffs for an injunction to restrain the defendants from erecting any building on their land which would cause an illegal obstruction to the ancient lights of the plaintiffs' premises.

Giving judgment, his Lordship said the windows affected were those of rooms on the ground and first floors of plaintiffs'

premises, which were occupied by executives in the lea of the company.

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The law on the subject had been settled by the well-known case of Colls v. The Home & Colonial Stores, reported in 1904 to enjoy Appeal Cases. There were other cases in which it had been held that in order to give a right of action there must be a substantial deprivation of light sufficient to render the occupation of the premises uncomfortable and to prevent the occupier from carrying on his accustomed business as beneficially as formerly, and that the test was whether the effect of a building was to diminish the light and air so as substantially to affect the occupation of the premises and to make them less fit for occupation. Those tests had to be adopted in the present case.

His Lordship said that according to a method devised many years ago, if at any point in a room there was a daylight factor of 0.2 per cent, that was just sufficient to form a satisfactory light. His Lordship went on to refer to the practice of taking a series of points in any room with a view to establishing the 'grumble line'. Broadly speaking, work could be carried on without artificial light on one side of the 'grumble line' but not on the other. The 'grumble line', however, did not represent any physical feature upon the ground but was a theoretical matter based on an average taken on a dull day over the whole year and every hour of daylight, and there was a very large number of imponderables in making such calculations.

The experts on both sides agreed that the access of natural light was an important factor in an office, even though the rooms were such that they might be artificially lit for most of the day. They also agreed that it was much more important, if there were a room which was poorly lit to begin with, to consider the amount of light being taken away than it was where there was a room which was well lit. If there were a brightly-lit room one might, expressed purely as a percentage of the area of the room, be able to take away a considerable percentage of light and still leave the room adequately lit according to the tests laid down, and it was a useful guide to measure the light taken away as a percentage of the formerly well-lit area rather than as a percentage of the whole room.

After consideration of the evidence, his Lordship said he was satisfied that there would be an actionable nuisance in respect of both floors. The alternative remedies were an injunction or damages, and the latter was a matter of discretion. In view of the 'space hunger' in the City, the evidence showed that in the area of the premises in the immediate vicinity of Lloyd's, and the tea, rubber, and other commodity markets, there was a ready market for ground- and first-floor offices, and that prospective occupiers would forgo the advantages of light to gain quicker access by not having to use lifts. The effect of the evidence as a whole was that even in normal times the plaintiffs would prove little more than nominal damages.

The plaintiffs, however, did not wish to let the ground and first floors, and did not

cutives in the least want damages, since they were settled asking—not unreasonably—that directors and executives should continue In 1904 to enjoy conditions substantially as beneases in defendants had been put to expense in the street of the s stantial prefabricating steelwork, and might lose der the rental estimated at £27,000 through delay. The defendants had acted perfectly fairly, ortable and had made three concessions to plainarrying tiffs, one of a substantial character. They owned 76 buildings and a number of empty hether sites in the City, and as their rent roll must ish the be a gigantic one, his Lordship thought that the loss of rental must fall into proper make perspective. There was no real hardship to the defendants in asking them to alter their plans, and no reason to compel plaintiffs to accept damages which they did not want instead of protection of their legal rights. His Lordship gave judgment for plain-

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# Correspondence

THE ARCHITECT'S DILEMMA

The Editor, R.I.B.A. Journal.

DEAR SIR,—The ECONOMIST article republished in the JOURNAL for April 1954 looks at our problem with a dispassionate eye, we grapple with it. Whether we agree with the ECONOMIST'S conclusions or not there is certainly a measure of truth in its statements.

Owing to the high number of students who completed their training in the three or four years after the war, and to the numbers who took up architectural studies during the same period, the profession is now overstaffed with men and women having an equal general knowledge of the

Surely the answer to this is specialisation as in the medical profession? This could be achieved by Royal Institute sponsored part-time courses aimed to equip as many architects as possible with the qualifications of consultants in the new methods of construction and special purpose buildings. Students should be encouraged to present for their theses or final testimonies of study the subject in which they intend to specialise. Otherwise I foresee that architectural practice, as we know it today, will become a backwater to the stream of 'Technical Advisers to the Building Industry'.

Yours faithfully, S. KEARSLEY-WOOLLER [4]

## STONEWORK MAINTENANCE IN HISTORIC BUILDINGS

DEAR SIR,-I am interested to read the correspondence in the JOURNAL about the treatment of stonework.

One of the finest examples of Portland stonework in London before the war was the Goldsmiths' Hall in the City. I was given to understand at that time that the building was hosed down under normal pressure from the level of the ground by

the Fire Brigade several times a year. It was a beautiful even tone of light warm grey throughout. I recently inquired from the London Fire Brigade about a similar service but was informed that the L.F.B. existed for the purpose of fighting fires and not for washing buildings!

My own feeling is that decay sets in mainly under cornices and heavy mouldings where the sun cannot dry it out normally and frequently. The soot collects and becomes encrusted in the surface of the stone and thus induces crumbling of the surface. It was for this reason that in the University I omitted all heavy mouldings and overhanging members and deliberately encouraged the building to 'wash its own face' and the surface of the stone was cut into small vertical grooves still further to accentuate this self-cleaning action.

This is a process which naturally acts most efficiently when the surface is exposed to the driving rains and I am convinced that no undue pressure or steam is required to obtain the best results.

> Yours faithfully, CHARLES HOLDEN, M.T.P.I. [F]

SIR,-With reference to the letter under the above heading in the April 1954 JOURNAL, no one who has listened to our lectures or read our writings on the care of ancient and valuable buildings will ever have doubted that we consider the cleaning of stonework as an essential thing in the more polluted atmospheres of our country, but in our little essay we were attempting to deal with a few principles of perhaps universal application. No one would water or steam-clean St. Michael's Mount.

The cleaning of old buildings carefully carried out has a desirable result. Stone is beautiful when it is newly cut, it is beautiful all the time it is weathering and when it has become matured, unless it is black with soot. Cleaning harks back to the original condition of the stone, or does so very nearly. The building is once more a delight in the way it was originally. This is no excuse for producing the same result by complete replacement of the old stone by new.

Restoration must always be done with conservatism. Renewals should be the veriest minimum. The reverse process carried to the extreme is to reface completely when the slightest deterioration appears. By this means, we should never have an old building longer than the strength of its weakest stone. A spotty appearance is only produced by unskilful handling of the work and by a wrong method, or too exhaustive a treatment. There are two regrettable results. Firstly, it is essential that the actual fabric of an old building should last as long as ever possible. No one with a sympathetic love of them and a reasonable archaeological view could think otherwise. Secondly, it is against the interests of old buildings to cause the cost of their maintenance to be excessive. The greater the proposed expenditure, the more likelihood there is of postponement of needed repairs and that attitude will develop until the condition of the building will demand demolition.

We are not ashamed of long-term efforts to arrest decay. We are not ashamed to talk about 'arresting decay'. Nor are we deterred in our researches by the uninformed jeers of the young in the care of our visual history. Neither sculptor nor painter can quite reproduce the atmosphere of the past and, besides this, there is something which a visual sense of depth, of background, can give: has given. A great worker who spent more years on this subject than we can yet claim once wrote 'Many of our historical buildings are rapidly falling into a state of decay; all their magnificent enrichments, the results of many labours of love, the materialised ideas of those whose thoughts were first and last centred on the production of the beautiful, are being lost for ever and to do the best possible to aid in the work of preserving these valuable treasures is a duty to those who are to come after us'. We know that we have been able, already. to do a little in this direction, greatly inspired and helped by the master we have quoted.

The demonstrated lack of sympathy and disregard of sentiment exhibited by some architects with 'modernistic' make-up places our old buildings in jeopardy: one stone is as good as another, one form is as good as one it may be supposed to have replaced, to create a new complete facade of any material. Replacing the hallowed stone may give some architects satisfaction. They are not the kind to whom the safety of our stone heritage should be entrusted.

What is indicated in our article is that restoration is usually overdone. This results in damage to the structure with aesthetic loss and to a much larger expenditure in cost than is necessary. We realise that sound economics are favourable to the life of buildings. In this subject of stone restoration, cost and aesthetics relate desirably.

Mr. Handisyde sneers at 'tourist-attracting charm' . . . but . . ., even if we have no sense of the romantic, is England really sure she can afford to do without all her real background? If imagination is to mend it, the imagination must at least be excited to some feeling other than that the scene before us was by Handisyde out of School-books.

> Yours faithfully, THOMAS RAYSON, F.S.A. [F] BERTRAM C. G. SHORE [L]



# Book Reviews

Old Buildings of Leatherhead, Ashtead, Bookham and Fetcham [Surrey]. A list of the surviving examples, etc. Leatherhead and District Local History Society. Drawings by C. J. Songhurst. (From Proc., i. L. and D. Countryside Protection Society.) 9½ in. 9 pp. incl. (4) pp. of illus. and pl. (map). [1952.]

Valuable though the illustrated Inventories of the Monuments Commission (when they appear) and the mimeographed lists of the M. of H.L.G. under the 1947 Act are, enormous areas will long remain to be covered, and local lists compiled by local enterprise such as this should be more widely emulated. The bare numbered items, with brief descriptions, are enlivened by adequate sketches, and a good map of the region by 'H.L.M.' The Local History Society of the district, of which we understand that A. W. G. Lowther [A] is a leading light, was the originating body.

H. V. M. R.

Swiss Housing Estates (Der Siedlungsbau &c., Les Colonies &c.), 1940-1950, by Julius Maurizio. (Basel: Arbeitsgemeinschaft der Gewerbemuseum, and Zürich: Kunstgewerbemuseums.) ob. 91 in. 111 in. 222 pp. incl. pp. of illus. Erlenbach-Zürich: Verlag für Architektur. [1952.] £3 7s. 6d.

This excellent book is a review of Swiss housing built between 1940 and 1950. During these ten years a great deal more was done than previously by various public authorities, and it is their work that forms the bulk of the material in the book.

The book is very well produced and the information on each housing estate or group is very full and uniform, including layout plans, type plans, excellent photographs and a very useful comparison of costs based on price per square metre. The text is in French, German and English.

It shows most clearly that the Swiss have developed a distinct vernacular style for the 3/4-storey flats which form the bulk of their developments. Like all vernaculars, this tends to be dull, but it is always based on sound architectural principles and there is increasing evidence in the later layouts of more interesting site planning and landscape design which owes something to the English tradition. One of the more interesting facts which is clearly demonstrated is the low cost at which the Swiss (and I believe other countries) can build tall blocks of flats-in particular the two great tower blocks at Zürich and Basle, eleven and thirteen storeys high, seem to have been built more than 25 per cent cheaper than the average price for 2-, 3- and 4-storey housing. One of these blocks-the higher one—is in load-bearing brickwork, which might be considered to be the main reason for its cheapness, until one discovers that the other-reinforced concrete frame -is considerably cheaper still, being 310 Swiss francs per square metre as opposed

to 350 francs for the brick block, and an average of 500 francs for the 3/4-storey blocks.

It is always difficult to apply the lessons learned from such foreign examples to English practice, because of the very different standards involved. It is, for example, noticeable that space standards are on the whole lower-sometimes much lower-than ours. Private gardens, although sometimes provided, are nothing like so universally required, and there is a great deal of excellent free landscape which it would be very difficult to persuade British authorities to instal and maintain. Central heating of small groups of buildings is very common. A good deal is said about neighbourhood planning in the introduction, but the examples of layouts in which many neighbourhood buildings have been provided are few. However, those halls, nurseries and other small buildings which do appear are usually imaginatively designed and very well sited.

PETER SHEPHEARD [A]

Early Melbourne Architecture [1840 to 1888], by Maie Casey (Mrs. R. G. Casey), Joan Lindsay, D. A. Casey, J. R. Freeman, T. D. Freeman and A. R. Henderson. 9 in. 184 incl. xvi pp. incl. pls. and pp. of illus. Oxford U.P. 1953. £2.

Mrs. R. G. Casey, with her five collaborators, has produced this admirable quite small book described as a photographic record. But her Introduction, the short essays on the four areas of the city and the comments on the photographs add much to the value of the excellent illustrations. There is, as well, a preface by Sir Owen Dixon, Chief Justice of the High Court of Australia, who says this book does for Melbourne what he would like to be done for the other cities of the Commonwealth.

One certainly hopes so. Indeed, one feels a little ashamed that the mid-Victorian architecture of that remote capital has been so well appreciated while we in London are only beginning to enjoy the look of Belgrave Square and to laud the Albert Memorial. For this record is as broad in its views as that. It includes St. Patrick's Cathedral (started in 1860 and a first-class neo-Gothic design), that 'most majestic of our public buildings'-the Parliament House (designed in 1856 by Peter Kerr and J. C. Knight in a faultless Doric idiom), together with a surprising number of most attractive

These domestic instances are really the feature of the book. They are rarely more than two storeys high, but nearly all have as much dignity and elegance in detail as Nash's best work in London. It is interesting to note the local use of sombre basalt, with the development of deep verandahs, the very rich cast-iron trimmings almost like lace, and the grouping of houses in pairs, or threes, or in terraces. The best of them all are finished in stucco; and some of those—for instance 116 Wellington Parade, 208-212 Clarendon Street, and the livery-stable (529 Elizabeth Street)-must be preserved at all costs. We shall expectideas wo the singular perception of these six author scapes if to be rewarded by some care for the various preservation of 19th-century Melbourne. could be

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Home and Environment, by Walter Segal monotor incl. pp. of i!lus. + pls. + endpapers. Leonard Hill. 1953. £2 2s. house pl

Mr. Walter Segal has re-written and ex-look the panded many chapters of Home and siderably Environment for its second edition. When tects an it was first published in 1948 it was some that a f thing rather new in architectural books, also rea being not only a book of house plans who cor (although many used it in this way), but also an important argument for careful designing towards the standards that every house should have in an age where standards English tended to be neglected in the face of urgent Interpre house building.

Mr. Segal gives us many ways-most of £1 5s. them still new to Britain in spite of the first Most of edition of his book-for building houses towns a with high standards of privacy, comfort and elsewhe amenity, at the densities for development of this insisted on in most parts of the country. sense, i The book is divided into three parts: the Professor small house, flats and maisonettes, and attempt

site planning.

The section on the small house gives detailed many permutations of well-known plans, book c starting with the universal three up and delivered two down type. The terraced house is dis- 49 dray cussed very fully, especially with regard to its two worst difficulties, the size of frontage appears and the means of access to the rear. The with the drawbacks of the narrow frontage house illustraare solved easily and fluently, but on the question of access to gardens there has been no mention of the through utility his interestore-room type. The terraced bungalows the Pi are ingenious and good and lead naturally even hi on to the various types of 'patio' house has har This is virtually a house placed end-on to the road with a connecting link between it and its neighbour-so forming a small courtyard between each house. The arrangement of the plans ensures complete privacy. architectural unity, and also, alas, no small degree of monotony; but from the point of view of living conditions, they seem very encycle fine indeed.

sensitiv Flats and maisonettes are dealt with fully tecture and many ways of access and many block enough arrangements are shown. The section on the aut site planning gives many useful principles of hun and definitions—the sort of thing that the to for planner has at his finger-tips but is often a catego cause of worry to the architect-and then Morni goes on to discuss layout technique after a excitin brief and concise summary of the history of period planning. Here is a wealth of factual inis no o formation on road widths, on space between buildings and space about buildarchite ings, on building plots and orientation. All of it is information that makes Home and after a Environment a valuable reference book.

The author has done practically all of but p the illustrations himself, as well as designing when the vast number of examples for the text. long a His style of drawing and architecture will not be appreciated by all, and many of his

expecideas would certainly make for drab townauthor scapes if not handled very carefully. The or thevarious layouts showing how the houses irne. could be used at Mr. Segal's suggested LER Is densities do not show this careful handling, and the parallel streets of repetitive blocks Segal open up many vistas of sameness and monotony. But this is a criticism of design monotony. But this is a many monotony and approach to design. There is no doubt and approach to book points to many fine ways of that the book points to many fine ways of outhouse planning and has a freshness of outnd ex-look that could help this country cone and siderably. It will mainly be read by archi-When tects and planners, and there is a chance some that a few of these enlightened ideas will books, also reach the committees and councils plans who control our future towns and housing. G. W. T. RANKINE [A]

every ndards English Architecture Since the Regency: an urgent Interpretation, by H. S. Goodhart-Rendel. 8½ in. 296 pp. incl. pls. Constable. 1953. ost of £1 5s.

ne first Most of the visual background of our large houses towns and the major 19th-century buildings art and elsewhere constitute the formidable subject pment of this book. Housing only, in its bulk untry sense, is omitted. It is probable that only s: the Professor Goodhart-Rendel is qualified to , and attempt the explanation today. In the 'Author's Note' we are promised a more gives detailed history in the future; the present plans, book contains the material of his lectures p and delivered at Oxford in 1934, together with is dis- 49 drawings.

ard to Though 'Plainly we can learn little by ontage appearances, except about appearances . . . The with the author to explain, many more house illustrations would have illuminated ideas which must have been clearer in the lece has tures. This, and possibly some doubts on utility his interpretation of 'Functionalism' and 'the Picturesque' are all that need disturb urally even his younger readers. Since 1934 much nouse. has happened and the author will not have missed moments of gaiety in the utilitarian een it gloom.

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From the Regency until the First War angethe vast panorama is dealt with faithfully ivacy, and with complete understanding not only small of buildings but of the complex ideas and int of forces which move architects. Here is very encyclopaedic knowledge, vitality and a sensitive affection for the art of archifully tecture. Anyone who has been fortunate block enough to walk or drive through a town with the author knows of the penetrating analysis n on ciples of hundreds of buildings which has helped at the to form the book and the grouping into ten a categories. Whether 'Bric-à-brac' or 'The then Morning After' will find their way into less fter a exciting histories of the architecture of the ory of period is doubtful; of their aptness there al inis no doubt.

But the value of the book lies chiefly in space ouildthe explanations; for example: 'The paper n. All architecture of the eighteenth century (for e and after all, that is what it chiefly was) had undergone great changes in the nineteenth; all of but paper architecture it remained even gning when Pugin and his imitators had changed text. all its forms and reversed its principles. So will long as the materials and design appeared of his to be what they were, and the sacred obligation of truth was nowhere flouted, nobody in Pugin's day cared much how the materials were wrought, provided the shape they assumed corresponded exactly with the architect's drawings.' Also one can welcome the justice of his praise for the work of men like C. R. Cockerell and Pennethorne and his assessment of the later giants of the Gothic Revival.

It is probable that most readers will find buildings mentioned which, to their surprise, are unknown to them although near to their home or office. Indeed, the book may well start us really looking at these buildings and continuing the search. In all periods there have been architects of sensibility whose work is overlooked in the changing tides of taste; and 19th-century building, being so vast and undisciplined, was particularly unkind to the minor masters. In this book the movements of fashion are explained, inevitably, by reference to the more important innovators and their work. But how few of these will have been studied, even casually, by people under 50 years of age. It is to be doubted whether the buildings have been looked at intelligently by more than a handful of architects, and Mr. Betjeman. By 'intelligently' is meant apprehending them as buildings, as opposed to dismissing them as symbols. This distinction is made clear and we are taught to use our eyes and

With the architecture after 1918 one is conscious of a highly individual interpretation of buildings and ideas. Even before, in the assessment of the work of Temple Moore and its comparison with that of Butterfield and Street, the sensitive understanding contains a hint of the later criticism. One has an uneasy feeling that, the author having been so right so far, the only way to decide is to re-visit the buildings.

But ideas on 'The Picturesque' will surely cause the most interesting discussions among architects. Are we to abandon them? Or are they not, in the hands of artists, the real answer to the design of buildings and groups of buildings grown so large that only movement about and through them can give true appreciation? Does not Mr. Hussey himself suggest this in his book? Was the Parthenon so perfect because it could be understood in one glance, and is the clue to a new discipline for real 'architectural architecture' not to be found in the study of optics and the way a building is seen in the fourth dimension of time? Moving pictures! Architects who wish to know themselves should know their immediate ancestors. J. H. N.

Monmouthshire Houses. A study of building techniques and smaller house-plans in the fifteenth to seventeenth centuries. National Museum of Wales, Cardiff: Welsh Folk Pt. ii. Sub-medieval houses, c. 1550-1610, by Sir Cyril Fox and Lord [F. R. Somerset, Baron] Raglan. 103 in. × 8 in. 135 pp. incl. pls. + xxi pls. and pp. of illus. + notes leaflet. text illus. Cardiff. 1953. 17s. 6d.

In 1951 appeared Part i, 'Medieval,' of

this valuable detailed survey not only of a neglected border county (formerly in Wales, since Henry VIII in England) but of a type of building little studied, viz. the ordinary humble house of the past: most domestic books (excepting Turner and Parker's and Addy's) dealt only with the mansions of the well-to-do. The period covered by this part is of great interest above and beyond the region: the coined word 'sub-medieval' (presumably on the analogy of 'sub-apostolic') refers to the continuance of medieval tradition, shown in such details as mullioned windows and variants of the 'Tudor' arch—in other words, to the delayed transition from medieval to renaissance; some colleges in Oxford might qualify for the term. Over 180 examples are referred to, of which many are illustrated by plans, measured details, or photographs.

There is a general index of subjects and

one of buildings by parishes.

H. V. M. R.

Building Law Illustrated, etc., by B. G. Phillips.  $8\frac{1}{2}$  in. xix + 201 pp. incl. 51 pls. Spon. 1953. £1 1s.

This book is a concise guide to building law in areas other than those controlled by the London County Council, and deals with the Model Byelaws, Series IV, Buildings, 1952, together with the relevant Acts of Parliament affecting a particular

The arrangement of the information is very convenient, as a reference to the list of Model Byelaws and the Acts of Parliament enable the details of any particular subject to be at once available.

There are numerous illustrations of the Model Byelaws forming a noteworthy feature of the book, and those showing fire resistance of various materials will assist in an understanding of the schedules. This provision of fire resistance is a new one in Byelaws and will need care in administration in the early stages.

The author has been at pains to prepare a volume which should be of value to practising architects and others connected with building matters outside the County of London, and it should be added to their library. C. W.

Building Construction and Drawing, by G. A. and A. M. Mitchell. Pt. 1 Elementary course. 21st ed. by Francis Kerr and E. W. Talbot. 7½ in. viii + 648 pp. incl. pls. + folding pl. Batsford. 1953. 15s.

The last edition, published three years ago, sold 25,000 copies and no doubt the twenty-first will be equally profitable. It is still a standard work on the subject and has now been revised in accordance with the requirements of the new byelaws-but, with all its solid old-fashioned virtues, there is no use pretending that it breathes the spirit of modern building technique and research.



# Notes and Notices

## NOTICES

Session 1953-1954. Minutes VII. At the seventh General Meeting of the Session, 1953-1954, held on Tuesday 18 May 1954, at 6 p.m. Mr. Howard Robertson, M.C., A.R.A., S.A.D.G., President, in the Chair.

The meeting was attended by about 110

members and guests.

The Minutes of the One Hundred and Sixteenth Annual General Meeting held on Tuesday 4 May 1954 were taken as read,

confirmed and signed as correct.

Mr. Ian R. M. McCallum, A.A. Dipl. [A], and Mr. Ian M. Leslie, O.B.E. [Hon. A], Editor, THE BUILDER, having read Papers on 'Architectural Journalism', a discussion ensued and on the motion of Mr. Alan Pitt Robbins, C.B.E., Secretary of the Press Council, seconded by Sir Hugh Casson, M.A. [F], a vote of thanks was passed to Mr. McCallum and Mr. Leslie by acclamation and was briefly responded to.

The proceedings closed at 7.40 p.m.

Correspondence with the Institute. In order to facilitate speedier attention to correspondence, and to relieve the staff of a great deal of research, it is particularly requested that members and Students will kindly state in all correspondence with the Institute the class of membership (F, A, L or Student) to which they

Members and Professional Affixes. The Council's attention has been called more than once to the practice among some members of adding a string of letters of doubtful value to the affix indicating membership of the Royal

Institute on their letter paper.

This is a matter in which the Council obviously cannot dictate to members, and must trust to their good sense. It should be obvious, however, that the affix of a chartered body of high standing is weakened in effect by the addition to it of a string of other mysterious designations some of which probably indicate no more than the payment of an annual subscription.

## BOARD OF **ARCHITECTURAL** EDUCATION

R.I.B.A. Examination for the Office of Building Surveyor Under Local Authorities. At the R.I.B.A. Examination for the Office of Building Surveyor under Local Authorities held on 28, 29 and 30 April 1954 nineteen candidates presented themselves and the following were successful:-Frank H. Burton, Frederick E. Casemore, Lionel G. Chilcott, John W. Hall, Ronald V. Kidd, Roy Sharpe, Norman E. Whitby, Francis W. Woodcock.

## COMPETITIONS

Competition for the Equipment of Railway Installations: Grand Duchy of Luxemburg. Notice has been received from the Secretary-General, International Union of Architects, of an architectural competition being promoted by the Government of the Grand Duchy of Luxemburg for the equipment of railway installations. Despite representations made by the International Union, the conditions of this competition are not in accordance with the Regulations for International Competitions in Architecture and Town Planning approved by the International Union, and members and Students R.I.B.A. are accordingly warned not to take part in this competition.

Dow Prize Competition. The Illuminating Engineering Society offers a prize which will be awarded to the winners of a competition intended to encourage collaboration between students of illuminating engineering or of those branches of engineering concerned with illumination, and students in other fields in which applied lighting plays an important part. While entries from individuals are not excluded, the competition is primarily intended for students (under the age of 26) working in collaboration. The competition will be set and judged by a panel of assessors appointed by the Society in co-operation with the R.I.B.A. and the Institution of Electrical Engineers.

· Premium: £75 (and a certificate to each member of the winning team).

Certificates of commendation will be awarded to any other entries of outstanding merit. Last day for submitting designs: 15 November

Forms of application and instructions as to the form which entries should take may be obtained from the Secretary of the Illuminating Victoria Engineering Society, 32 London, S.W.1.

#### COMPETITION RESULTS

Crematorium, Kirkcaldy

Messrs. Sanger and Rothwell [AA].
 Mr, W. F. Howard [F].

3. Mr. John A. Wells-Thorpe [A]. Commended: Messrs. Lavender, Twentyman and Percy [FFA]; Mr. John Peters [A] and Mr. Walter Scott [A]; Mrs. Heather Shipman [A] and Mr. S. G. E. Shipman [A].

International Calvert House Competition for the Canadian Home of Tomorrow

International Award: Mr. Knud Peter Harboe of Denmark.

Canadian Award: Mr. Geoffrey E. Hacker

European Award: Mr. Gardner Ertman. Hon. Mentions: J. L. Lalonde; G. S. Abram and J. B. Craig; H. Scasny; E. Defty [A]; R. R. Söderlind; Victor Prus [A]; J. D. Cordwell [A]; J. Abma; T. B. Gourlay (Student); G. M. Fullman [A].

## ALLIED SOCIETIES

Changes of Officers and Addresses

Birmingham and Five Counties Architectural Association. President, S. T. Walker [F], 83 Suffolk Street, Birmingham.

Coventry Society of Architects. Chairman, Gwyn H. Morris [L]. Hon. Secretary, W. G. Sealey [A], 71 Broadway, Earlsdon, Coventry.

Essex, Cambridge and Hertfordshire Society of Architects. President, Harold Mileson [F]. Hon. Architects. President, Harold Mileson [F]. Hon. Secretary, R. Owen Vine [A]. West Essex Chapter: Chairman, S. J. Clapp. Cambridge Chapter: Chairman, W. K. Ferguson [A]. Hon. Secretary, D. A. G. McLeod [A]. Hertfordshire Chapter: Chairman, J. E. L. Caldwell [A]. Southend-on-Sea and District Chapter: Chairman, R. E. S. Enton [A]. Hon. Secretary. man, R. F. S. Fenton [A]. Hon. Secretary, G. G. Shenstone [A]. Chelmsford and District Chapter: Chairman, S. E. Bragg [A], 21a London Road, Chelmsford. Colchester and

District Chapter: Chairman, H. W. Pearce [L] essay on

Manchester Society of Architects. The address in the u of the Hon. Secretary, Mr. Eric S Representations for of the Hon. Secretary, Mr. Eric S. Benson, Constru M.B.E. [F] is now 14 St. Peter's Square, Lings'. T Manchester 2. of a casl

Northamptonshire, Bedfordshire and Hunting of dome donshire Association of Architects. Northam. The J donshire Association of Architects. Northamptonshire Branch: Hon. Secretary, A. R. Whit-Heat, w ton [A]. Applian

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Northern Architectural Association, Tees-side Branch. Hon. Secretary, Vinton Hall A.M.T.P.I. [A], Deputy Borough Architect Hall Central Buildings, Darlington, Co. Durham.

Preston, Blackburn and District Society of Health Architects. President, G. Noel Hill, M.T.P.l vantage ment of

Sheffield, South Yorkshire and District Society that reli of Architects and Surveyors. President, H. A. in which Hickson [F], Hallcroft Chambers, Hall Gate, persons

South-Eastern Society of Architects, Canterbury District Chapter. Chairman, L. Hugh Wilson, O.B.E. [A]. Hon. Secretary, K. Waite [A], 127 Sandgate Road, Folkestone, Kent.

West Yorkshire Society of Architects. Hon. The Tr Secretary, W. H. King [F], 11a Cavendish Study Road, Leeds 1. Bradford Branch: Chairman, The Tr J. H. Langtry-Langton [L], 8 Oak Mount, Trussec Manningham, Bradford.

Glasgow Institute of Architects. President, W. A. P. Jack [F].

Cape Provincial Institute of Architects. President, J. J. O. Orpen [A], Keegan House, 38 Hout Street, Cape Town.

Royal Australian Institute of Architects. President, E. J. A. Weller [F], c/o Dept. Public Works, Treasury Building, George Stree, Brisbane, Queensland. Hon. Secretary, K. C. Duncan [F], Hopetoun Street, South Perth, Western Australia.

Federation of Malaya Society of Architects. President, V. S. van Langenberg [L]. Hon. Secretary, A. O. Coltman, M.B.E. [L].

South-Eastern Society of Architects. Annual Luncheon. The South-Eastern Society of Architects held their annual luncheon on Saturday 15 May at the Regency Hotel, Ramsgate. Mr. R. W. Paine, A.R.C.A. [4], President of the Society, was in the Chair, and among the guests were Mr. Howard Robertson, M.C., A.R.A., S.A.D.G., President R.I.B.A., and Mrs. Robertson; The Right Reverend the Lord Bishop of Dover; Mr. J. Arbuthnot, M.B.E., T.D., M.P. for the Down Division of Kent; Alderman S. E. Austin, J.P., Deputy Mayor of Ramsgate; and Mr. C. D. Spragg, C.B.E., Secretary R.I.B.A.

After the Loyal Toast, the toast of 'Archi tecture' was proposed by the Lord Bishop and replied to by Mr. Howard Robertson and Mr. Paine. The toast of the guests was proposed by Mr. G. I. Clay [A], Chairman of the Canterbury District Chapter of the Society, and response was made by the Deputy Mayor of Ramsgate and Mr. Arbuthnot.

### GENERAL NOTES

Royal Sanitary Institute. Prize Essay Competi tions for Subjects Dealing with Building, Fuel and Health Visitors. A number of prize essay competitions are announced by the Royal Sanitary Institute for which cash prizes will be awarded.

The John Edward Worth Prize for the best

essay on 'The Advantages and Disadvantages essay on the Advantages and Disadvantages in the use of Alternative Materials as Substitutes for Traditional Materials in Building Benson, Construction, Sanitary Appliances and Fit-Square, itings'. The award, which will take the form of a cash prize of £70, to be used for the study Hunting of domestic sanitary science in Europe.

orthamp. The John S. Owens Prize for an essay on R. Whit Modern Practices in the Conservation of Heat, with special reference to Smokeless Fuel Appliances' will consist of 20 guineas.

A prize of £21 is also to be awarded for the A prize of Suggestions for the Training of best essay on Suggestions for the Training of Health Visitor's Work'. Conception of the Health Visitor's Work'. ciety of Health visitors are invited to discuss the ad-M.T.P.I vantages and disadvantages to a health department of an all-purpose nurse.

The competitions are open to all, excepting Society that relating to the John Edward Worth Prize, H. A. in which particular case entries are restricted to ll Gate, persons resident in the British Isles.

Full particulars regarding these prize essay competitions, the closing date for which is Wilson, Secretary, The Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.I.

s. Hon. The Truscon Travelling Scholarship for the swendish Study of Reinforced Concrete Construction.

Alternative American Study of Reinforced Concrete Study of Reinforced Concrete Study of Reinforced by the Mount, Trussed Concrete Steel Co. Ltd., details of which were given in the February JOURNAL, has been awarded to Mr. W. A. Gibbon, B.A. [A], esident, of Manchester.

Mr. Gibbon will be accompanied by Mr. . Presi- H. W. Beckingham of the Company's staff, to use, 38 whom a similar Scholarship has been awarded.

Course in Concrete Practice. The City and Guilds of London Institute has prepared Presi-Public a one year part-time course in concrete prac-Street, tice intended for supervisors engaged in the processes connected with the production, placing and finishing of concrete. The course will consist of one two-hour lecture per week Perth, hitects. for 24 weeks and will begin in the autumn of lor 24 weeks and will begin in the autumn of this year. A pamphlet giving full particulars is obtainable from the City and Guilds of London Institute, Department of Technology, 31 Brechin Place, S.W.7. price 6d. post free.

The course covers materials, proportioning, . Hon. Annual

mixing, placing, compaction, curving, testing, on on construction joints, formwork, reinforcement, plant operation, pre-stressing and precast work. An examination will be held at the end of the course and successful candidates will be awarded a certificate. Candidates will be Right Mr. J. expected to have completed an organised course at a technical college or similar institu-

> Change of Title. The Incorporated Institute of British Decorators, founded 1899 for the promotion and the advancement of the Practice and Craft of Interior Decoration and Design, has recently extended its name to the Incorporated Institute of British Decorators and Interior Designers.

> The syllabus of the Associateship examina-tions has also been widened to include a special examination for students of the craft desiring to qualify as interior designers. For this purpose the Final grade of the examination has been divided into two parts, one for the craftsman decorator and the other for the interior designer. Associateship of the Institute is confirmed on those passing in either section of the Final grade.

> Full particulars of the examinations and conditions of membership can be obtained from the Secretary, Incorporated Institute of British Decorators and Interior Designers, Drayton House, Gordon Street, W.C.1.

L.C.C. Qualifying Examination for the Office of District Surveyor. An examination for certificates of proficiency to perform the duties of district surveyor will be conducted in London in the week beginning 18 October 1954. The minimum age limit for candidates is 25.

Possession of this certificate is necessary for appointment to positions as District Surveyor (salary scale £1,350 to £2,200 a year) or as Assistant District Surveyor (salary scale £1,027 to £1,168 a year).

Subsequent examinations will be held annually.

Apply to The Architect to the Council (AR/ED/PH), County Hall, Westminster Bridge, S.E.1, for application forms and further particulars.

R.I.B.A. Golfing Society. R.I.B.A. versus B.A.G.S. The annual match between the R.I.B.A. Golfing Society and the Building Alliance Golfing Society was held at Camberley Heath on 27 April and resulted in the narrowest possible win for the B.A.G.S.

Of the singles matches in the morning the architects won 9, lost 10 and halved 3; the foursome games resulted in 5 wins each with 1 game halved. Thus the Building Alliance Golfing Society scraped home by 15 matches to 14, winning the final foursome by the last putt on the 18th green.

Invitation Meeting with Liverpool and Wessex Architects' Golfing Societies, Friday 7 May 1954. This meeting was held in delightful weather at Walton Heath Golf Club and was well supported.

The Stableford Competition was arranged for the morning on the old course. The guests' spoon was won by Ivor Day with a score of 31½ points. The London spoon was won by H. St. John Harrison with a score of 33¾ points; the runner up being R. G. Scott with a score of 32½ points. In the afternoon a fourball bogey competition was held on the new course, which was won by R. G. Scott, handicap 2 and A. D. McGill, handicap 10, with the remarkable score of 11 up on bogey. The runners up, each with a score of 2 up, were Sir Giles Gilbert Scott and Eric Cole; C. A. Townsend and Paul K. Pope; P. Hickey and Alwyn Jones—the latter pair being awarded the second sweep on the second 9 holes.

A dinner was held in the evening at the

Burford Bridge Hotel, giving a further oppor-tunity for members and guests to get acquainted.

The R.I.B.A. Golfing Society hopes that provincial architects will form their own societies in different parts of the country and become affiliated. It is then proposed to hold meetings at convenient venues to give an opportunity For architect golfers from all parts to meet each other, and enjoy a day such as that held at Walton Heath.

R.I.B.A. Cricket Club. R.I.B.A. versus Vitruvians. The R.I.B.A. played their annual match with the Architectural Press (Vitruvians) on the A.A. Ground, Elstree, on 12 May. The R.I.B.A. won by three wickets. The scores

#### Vitruvians

viiruvians	
R. D. Mudie, c. Batty, b. Case	22
D. Boswell, l.b.w. b. Case	3
W. D. Bryant, b. Smyth	9
A. Boyd, b. Case	2 5
R. Dowson, c. Case, b. Smyth	5
F. A. C. Tatham, b. Case	3
I. M. Leslie, c. Smyth, b. Case	2
W. A. K. Faldo, b. Case	8
R. Fisher, b. Batty	5
A. Watts, not out	2
D. McNaish, b. Case	0
Extras	10
Total	71

Case-6 for 32; Smyth-2 for 24; Batty-1 for 2.

K.I.B.A.	
J. K. Hawkes, b. Dowson	6
C. A. R. Norton, b. Mudie	8
B. S. Smyth, b. Mudie	9
D. G. Woodley, c. Mudie, b. Boyd	12
D. Le M. Brock, l.b.w. b. Bryant	3
D. S. Taylor, b. Mudie	0
J. G. Batty, not out	16
A. Douglas, l.b.w. b. Bryant	5
L. Bishop, not out	2
G. R. Linfield and R. Case did not bat.	
Extras	13
Total	74

Mudie—3 for 15; Bryant—2 for 5; Dowson—1 for 23; Boyd—1 for 20.

# Notes from the Minutes of the Council

## **MEETING HELD 4 MAY 1954**

- 1. Appointment. Building and Civil Engineering Regional Joint Production Committee, Region No. 2—East and West Ridings: R.I.B.A. Representative. Noel Pyman [F], President, West Yorkshire Society of Architects, in place of the late Norval R. Paxton [F].
- 2. The Royal Danish Academy. The Council congratulated Sir Hugh Casson on his election as a member of the Royal Danish Academy.
- 3. Conference on Health Buildings. The Secretary reported that it had been necessary to revise arrangements for the proposed Conference on Health Buildings to be held at the R.I.B.A., and this was now to take place on the 21 and 22 October 1954. The Right Hon. Iain Macleod, M.P., Minister of Health, had accepted an invitation to open the Conference.
- 4. Paint Colour Ranges. The Secretary reported that consultations with the Paint Industry

Colour Ranges Committee were approaching completion and it was hoped that at a final meeting agreement could be reached on an approved range. It was agreed to empower the R.I.B.A. representatives to conclude agreement with the Industry Committee.

- 5. Arbitration Law Amendment. The Secretary stated that the President of the Institute of Arbitrators had asked for the support of the R.I.B.A. for a Bill to render void any provision in an agreement which made one of the parties or an employee or agent of a party the arbitrator under a dispute arising and referable to arbitration under the agreement. A similar Bill had been sponsored in 1936 but had failed to reach the Statute Book. It was agreed to support the proposed Bill.
- 6. R.I.B.A. Architecture Bronze Medal: The Devon and Cornwall Society of Architects. The Secretary reported that the Jury of the Devon and Cornwall Society of Architects had made

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their award for the three-year period ending 31 December 1953, in favour of the Canteen Building of Messrs. Tecalemit, Plymouth, Building of Messrs. Tecalemit, Plymouth, designed by H. F. Walls [A] and C. H. B. Pearn [A]. Formal approval to this award was

7. Exhibitions. The Council approved recommendations of the Public Relations Committee that an exhibition of German post-war architecture should be held at the R.I.B.A. from the 8-31 December 1954, and that an exhibition of contemporary architecture arranged by the Joint Committee on Structural Concrete should be shown at the R.I.B.A. from the 18-29 October 1954.

8. Presentation by Australian Building Productivity Team. The Council received with appreciation the gift of a tray of Australian native wood, presented by Lieut.-Colonel W. R. G. Longmuir, Leader of the Australian Building Productivity Team which had recently visited the United Kingdom.

9. Joint Committee of Architects, Quantity Surveyors and Builders. The following R.I.B.A. members were appointed to the new Joint Committee of Architects, Quantity Surveyors and Builders, formed to follow up the report of the Joint Committee on Tendering Procedure and productivity matters generally: The President, C. H. Aslin [F], A. R. F. Anderson [F], Harold Conolly [F], F. Charles Saxon [F], Michael Waterhouse [F].

10. Constitution of the Council and the Fellowship, R.I.B.A. It was agreed to set up a Committee of Council to examine fully the present constitution of the R.I.B.A. Council with respect to the representation of various classes of membership and various forms of occupation and also to consider the provisions of the Royal Charters in regard to the qualifications for the Fellowship, R.I.B.A., and to make recommendations on these matters.

11. Representation of Members and Students in Salaried Employment. The Council received from the statisticians an analysis of the replies to the questionnaire sent out to members and Students in the United Kingdom. After studying the figures the Council began a review of all aspects of the situation and consideration of what steps it might be appropriate to take.

12. Membership. The following members were elected: as Fellows 6; as Associates 52; as Licentiates 8.

13. Students. 28 Probationers were elected as Students.

14. Applications for Election. Applications for election were approved as follows: *Election* 15 June 1954: as Fellows 9: as Associates 224; as Licentiates 8.

15. Applications for Reinstatement. The following applications were approved: as Associate, John Byers; as Licentiate, Raymond Walker.

16. Resignation. The resignation of Horace Tennyson O'Rourke [F] was accepted with

17. Application for Transfer to Members' Class under Bye-law 15. The following application was approved: as Retired Fellow, Charles Cowles-Voysey.

**18.** Obituary. The Secretary reported with regret the death of the following members: Harvey Wiley Corbett [F], Edgar Sefton Underwood [F], Allen Trevis Hussell [Retd. F] Archibald John McLean [Retd. F], Ernest Harold Cornes [A], Douglas Lindesay Crawford [A], Harold Ridley Hooper, O.B.E., M.C., T.D., D.L. [A], John Wilks [A], Walter Albert Williams [A] Williams [A], Joseph Aldridge [Retd. L], Hubert Leonard Colville [Retd. L], William Johnson Clark Coulson [Retd. L].

By resolution of the Council the sympathy and condolences of the Royal Institute have been conveyed to their relatives.

N.Z.I.A.), 94 Federal Street, Auckland C. Rozsa: Imr. New Zealand. Prof. A. C. Light, Prof. C. Rairobi, K. Knight and the President and Hon. Secretaryrcher, G. I of the New Zealand Institute of Architect choltz: T under Bye-law 3(a). Pretoria) (F

Finsen: Eyvind Niels, B.Arch. (Rand) (Passeby the I.S. a qualifying Exam. approved by the I.S.A.A. Burg, Box Union Observatory, Johannesburg, S. Africa odge, W. A. A. Burg, Box Union Observatory, Johannesburg, S. Africa odge, W. A. Applying for nomination by the Council under Don Bye-law 3(d).

Passed a Grace: Henry Walter [Special Final], c/N.Z.I.A.), I Architectural Office, Public Works Departry of Worment, Hong Kong. W. W. C. Shewan, E. R. R. Knig Cumine, G. A. V. Hall.

Greenhough: Anthony Gardner, B.Arch. (Auch Institute of N.Z.) (Passed a qualifying Fr. N.Z.) (Passed a qualifying Exam. approved benith: Got the N.Z.I.A.), 16 Grande Vue Road, Papatoei qualifyin toe. Auckland New Zealand Ben Conde toe, Auckland, New Zealand. Prof. C. Rie Grande Knight, C. R. Ford, W. H. Gummer.

W. H. Gu Herbert: John David, B.Arch. (Auck. N.Z. W. H. Gu (Passed a qualifying Exam. approved by the steinberg: N.Z.I.A.), 11 Karori Crescent, Orakei, Aucki qualifyin land, E.I., New Zealand. Prof. C. R. Knigh? Security and the President and Hon. Secretary of the Johannesb New Zealand Lectivity. New Zealand Institute of Architects undertion by the Bye-law 3(a). Tribelhorn

Hughes: Henry Richard, A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), Robins Ridge Farm, New Hartford, Connecticut, U.S.A. Arthur Korn, A. J. S. Hutton, Henry Elder.

Knight: Kevin Francis (Passed a quantyng Exam. approved by the R.A.I.A.), 48 Glenferrie Road, Hawthorn E.2, Victoria, Australia West Co. J. F. D. Scarborough, S. T. Parkes, P. A. of the December 2015 Knight: Kevin Francis (Passed a qualifying

Louw: Leslie Brink, B.A.(Arch.) (C.T.) (Passed a qualifying Exam. approved by the I.S.A.A.) ps Voortrekker Road, Bellville, Cape Province, S. Africa. Prof. L. W. T. White, O. Pryce domestic. Lewis, H. L. Roberts. premises,

Low: Ah Long, B.Arch. (Melbourne) (Passed Stoke. H a qualifying Exam. approved by the R.A.I.A.) Hall, Ply 51B Market Street, Singapore. K. S. Ng, Prof. school for B. B. Lewis, Mrs. Hilary Lewis. Borough

McKay: Reginald William (Passed a qualifying Exam. approved by the N.Z.I.A.), 33 Burra Road, Artarmon, N.S.W., Australia. J. C. frowell, E. L. Thompson, J. L. S. Mansfield.

Mark Brown: Peter, B.Arch. (Auck. N.Z.) eminent Mark Brown: Peter, B.Arch. (Auck. N. E.) eminent (Passed a qualifying Exam. approved by the N.Z.I.A.), Regent Chambers, 94 Federal Street, Auckland C.1, New Zealand. Prof. A. C. Light, Prof. C. R. Knight, and the President and Hon. Secretary of the New Jealand Institute of Architects under Byelinguist law 3(a).

studied Newman: Geoffrey Colin, B.Arch. (Auck. N.Z.) (Passed a qualifying Exam. approved by the N.Z.I.A.), 9 Orakau Road, Mangere East, Auckland, S.E.7, New Zealand. Prof. C. R. Knight, C. R. Ford, W. H. Gummer. guidano 'A ro

O'Connor: Kenneth Wille', B.Arch, (C.T.) (Passed a qualifying Exam. approved by the I.S.A.A.), 'Raymond', Lock Road, Claremont, Cape Town, S. Africa. O. Pryce Lewis and applying for nomination by the Council under

Patchitt: (Miss) Sheila Mary, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), c/o Messrs, D. M. Sinclair & Partners, 85 Alliance Buildings, New Street North, Johannesburg, S. Africa. D. M. Sinclair and applying for nomination by the Council under Bye-law 3(d).

Prvor: Clarence Gandy (Passed a qualifying Exam. approved by the R.A.I.A.), 46 Brisbane Street, Launceston, Tasmania. C. E. Philp, Roy Smith, R. N. Butler.

## Membership Lists

**ELECTION: 12 OCTOBER 1954** 

An election of candidates for membership will take place on 12 October 1954. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday 18 September

The names following the applicant's address are those of his proposers.

AS FELLOWS (3)

Irvine-Smith: Charles Chudleigh, B.Arch., Dip.T.P. (Rand) [A 1940], P.O. Box 2493, Johannesburg, S. Africa; 12 Wallace Street, Waverley, Johannesburg, A. S. Furner, Gordon Leith, D. M. Sinclair.

Vaz: Julius Lazarus [A 1937], Office of the Chief Engineer, Public Works (Orissa); Bhubaneswar, Orissa, India. Claude Batley, H. F. King, P. A. d'Avoine.

Wade: John Howard, A.A.Dipl. [A 1938], 1020 Government Street, Victoria, B.C., Canada; 1538 Beach Drive, Victoria. Prof. E. R. Arthur, Basil Spence, Brian Peake.

AS ASSOCIATES (33)

Aronin: Jeffrey Ellis, B.Arch., M.Arch. (Univ. of Manitoba, Winnipeg, Canada: Dept. of Arch.), 389 Woodmere Boulevard, Woodmere, L.I., New York, U.S.A. The late H. W. Corbett and applying for nomination by the Council under Bye-law 3(d).

Bank: Naty, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), 12 Alvonne Heights, 34/36 Rhodes Street, Quigney, East London, S. Africa. Applying for nomination by the Council under Byelaw 3(d).

Brooker: Ludlow Ellison (Passed a qualifying Exam. approved by the N.Z.I.A.), c/o State Advances Corporation of N.Z., Head Office, Wellington, New Zealand. J. I. King, W. H. Gummer, C. R. Ford.

Bryant: James Howard, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), 30 Third Avenue, Highlands North, Johannesburg, S. Africa. Applying for nomination by the Council under Bye-law 3(d).

Burdon: Heinrich Balduin [Special Final], P.O. Box 744, Nairobi, Kenya Colony, East Africa. L. G. Jackson, E. D. Hill, G. B. E. Norburn.

Caplan: (Mrs.) Theolea, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), 17 Circle Court, Clarendon Circle, Johannesburg, S. Africa. Applying for nomination by the Council under Bye-law 3(d).

Curtis: Ronald George David [Special Final], Public Works Department, P.O. Box 137, Lusaka, N. Rhodesia. G. A. Jellicoe, G. A. Crockett, R. C. White-Cooper.

Ding: Gar Day, B.Arch. (Auck. N.Z.) (Passed a qualifying Exam. approved by the N.Z.I.A.), Messrs. Ding Chun & Son, Outram, Dunedin, New Zealand. J. H. White and the President and Hon. Secretary of the New Zealand Institute of Architects under Bye-law 3(a).

Fairhead: Allan Donald, Dip.Arch (Auck. N.Z.) (Passed a qualifying Exam. approved by the

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d C. Rozsa: Imre [Special Final], P.O. Box 2309, C. Ryairobi, Kenya Colony, East Africa. H. D. retaryrcher, G. B. E. Norburn, Mrs. E. D. Hughes. hitecticholtz: Tielman Johannes Roos, B.Arch.

Pretoria) (Passed a qualifying Exam. approved Passeby the I.S.A.A.), c/o Messrs. Burg, Lodge & A.A.Burg, Box 1726, Pretoria, S. Africa. C. S. AfricaLodge, W. A. Macdonald, Prof. A. L. Meiring. unde Shaw: Donnal Gavin, B.Arch. (Auck. N.Z.)
Passed a qualifying Exam. approved by the control of the control epandry of Works, Wellington, New Zealand. Prof. E. R. Knight, H. L. Massey and the President and Hon. Secretary of the New Zealand Auch statute of Architects under Bye-law 3(a).

Auck ed b**mith: Gordon,** B.Arch. (Auck. N.Z.), (Passed batoe) qualifying Exam. approved by the N.Z.I.A.), R. Grande Vue Road, Papatoetoe, Auckland, New Zealand. Prof. C. R. Knight, C. R. Ford, W. H. Gummer.

N.Z. W. H. Gummer.

y the steinberg: John Barry, B.Arch. (Rand) (Passed Auck qualifying Exam. approved by the I.S.A.A.), night 8 Security Buildings, 95 Commissioner Street, of the Johannesburg, S. Africa. Applying for nominal and the street of the Council under Bye-law 3(d).

Tribelhorn: Ferdinand Juan, B.A.(Arch.) (C.T.)

(Passed a qualifying Exam. approved by the I.S.A.A.), 99 Voortrekker Road, Bellville, Cape Province, S. Africa. Prof. L. W. T. White, O. Pryce Lewis, H. L. Roberts.

Wilson: Francis Gordon (Passed a qualifying Exam. approved by the N.Z.I.A.), 83 Campbell Street, Karori, Wellington, New Zealand. W. G. Young, W. H. Gummer and the President and Hon. Secretary of the New Zealand Institute of Architects under Bye-law 3(a).

Wolff: Winston, B.Arch. (Pretoria) (Passed a qualifying Exam. approved by the I.S.A.A.), 591 Pretorius Street, Pretoria, Transvaal, S. Africa. Prof. A. L. Meiring and applying for nomination by the Council under Bye-law

Wong: Alfred Hong Kwok, B.Arch. (Melbourne) (Passed a qualifying Exam. approved by the R.A.I.A.), Messrs. Swan & Maclaren, Hong Kong Bank Chambers, Singapore. Prof. B. B. Lewis, C. Y. Koh, K. S. Ng.

Woodburn: William James (Passed a qualifying Exam. approved by the R.A.I.A.), I Hughes Street, Montmorency, Victoria, Australia. R. S. Demaine, Prof. B. B. Lewis, Mrs. Hilary connected with the building of numerous police stations, secondary schools in Whitley Bay and Wallsend, a nurses' home and farm buildings at Morpeth and the replanning and modernisation of Morpeth Asylum.

Francis Henry Jones, M.B.E. [Retd. A], died on 4 January, aged 76.

Mr. Jones, who trained in Wednesbury, Staffs., spent ten years in Buenos Aires, where he worked with Mr. Lauriston-Condor on the building of the new station. He returned to England in 1916 to join the R.E. and served in France, being awarded the M.B.E. (military). He also practised for a time in Scarborough.

Archibald John McLean [Retd. F] died on 24 April, aged 65.

Mr. McLean served articles with Messrs. Oakden & Hawker of Eastbourne and Brighton. He began personal practice in 1923 and practised throughout his life in Brighton. Among his works were the Withdean Stadium and Preston Park grandstand, and he also carried out general domestic practice. From 1937 to 1939 Mr. McLean was Chairman of the Brighton and District Chapter of the South-Eastern Society of Architects.

Horace Blackbrough Midgley [L] died on 27 November 1953, aged 60.

Mr. Midgley trained with Messrs. John Haggas & Sons in Keighley. After service in the first world war he entered the Borough Surveyor's Department in that town, remaining there until 1925. He then went to the Municipal Corporation of Morecambe and remained there until 1950, rising to be Chief Architect.

At Keighley Mr. Midgley was responsible in particular for Broomhill Estate, and at Morecambe for housing estates, the interior of the new town hall, promenade and park structures and for the choir stalls and rostrum of Parliament Street church. He was a church organist for over forty years and was also a keen amateur photographer.

Arthur Edward Fewster [L] died on 1 March, aged 83

Mr. Fewster began his career as assistant architect and surveyor to the London General Omnibus Company, rising to be chief architect. He later took an architectural post with the Woodall Duckham Construction Company Limited. During the first world war he was engaged on war work, first on the construction rolling mills for the government, later as architect in the Ministry of Munitions. After that war he returned to his former employment with the Woodall Duckham Construction Company, remaining there until his retirement at sixty years of age.

He also carried out a certain amount of private practice, designing private houses and shops throughout the country.

Mr. Fewster became a member of the Society of Architects in 1896 and was elected a Licentiate of the R.I.B.A. in 1925.

Francis John East [A] died on 16 March, at the early age of 39.

Mr. East served articles with Calvert Jessop [F] and W. B. Starr, Hall & Clifford [L] of Nottingham and then took a position with the Corporation of Nottingham. From 1940 until 1946 he served with the R.E. in West Africa and India. On his demobilisation he went to the Nottinghamshire County Council, and was engaged on the design of schools for the Mansfield area.

He was elected Associate in 1947.

## S.A er. Obituaries

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John Leighton Fouracre [Retd. F], a well-known West Country architect and former President of the Devon and Cornwall Society of Architect and Palentry, aged 66. tects, died on 21 February, aged 66.

assed After serving his articles Mr. Fouracre began A.), personal practice in 1906 and practised throughout his career in Plymouth. He had an extensive domestic practice, and also designed licensed premises, schools and an old people's home at ISSE Sloke. He reconstructed the Methodist Central A.), Hall, Plymouth, and made alterations to the Prof. school for spastic children at Ivybridge.

Mr. J. T. Lewis [4], Architect to the County Brough of Dudley, writes:

"Many old students of the Plymouth School

'Many old students of the Plymouth School Many old students of the Light regret of c. of Architecture will have hear the death of Mr. J. Leighton Fouracre.

'For many years Mr. Fouracre was an (1.Z.) eminent figure in the professional life of the the West Country, having his office in that centre eral of Plymouth which was blasted away during the raids of 1941 and 1942. He was, besides the being an architect of great competence, a man New of vast learning and erudition, an accomplished Bye- linguist and musician. As a teacher and lecturer he was unsurpassed, and any who the guidance will remember the infectious enthusiasm he created in all his pupils. ast.

'A robust and powerful personality, he helped to form in the minds of young architectural students an abiding love for his chosen art and profession, and many owe their subsequent the successes to his early influence. He had more than a touch of the Grand Manner which enriches and endears the memory.

Alexander Robert Meldrum [L], who was an architect in Dublin for many years, died on the 14 November 1953, aged 73.

Meldrum belonged to Aberdeen and was a pupil of a well-known Aberdeen architect, Mr. A. H. L. Mackinnon. Like so many Aberdonians he found the road to London irresistible, and in the course of a very varied experience was at one time an assistant in the offices of both Sir Edwin Cooper and Sir Edwin Lutyens.

Still influenced by the wanderlust of the Scot, Meldrum found himself in the offices of

Messrs. C. F. Stevens & Co. in Bombay. This firm, the founder of which designed the famous Victoria Terminus in Bombay as well as other notable buildings—the B.B. & C.I. Railway offices and the Municipal Buildings in Bombay-had a valuable connection with native states and carried out a great mass of work in palaces and other structures in Baroda, Indore and other parts of India.

The first world war broke out as Meldrum was on home leave and he saw active service in the Artists' Rifles and was wounded. After the war he again found his way to India and practised privately in Karachi and Bombay. After further varied experience, mainly in the Home Counties of England, he arrived in Dublin in 1924, where he joined the firm of William H. Byrne & Son. This firm had an extensive practice and Meldrum found himself assisting in the design of Roman Catholic cathedrals, notably those of Athlone, Mullingar and Kilmore, mainly in the classical tradition.

During the second world war Meldrum came to London to assist in the design and erection of military buildings, and, after the war, in rehabilitation. In 1945 he was again back in Dublin in his old job.

A Scot of catholic tastes and of endearing disposition, he will be sadly missed in many a Dublin coterie. He was a keen fisherman and golfer, a member of Milltown Golf Club, an active Freemason, and a member of the Dublin Scottish Benevolent Society of St. Andrew. A. M. REITH [Retd. L]

Edward Eric Bridge [L] died on 19 November 1953, aged 54.

Mr. Bridge was at Liverpool University from 1920 to 1922 and in 1923 entered the drawing office of the then Office of Works. At the time of his death he was Superintending Surveyor to the Ministry of Works in London. He had in the intervening years worked for the Ministry in Liverpool, Manchester and Edinburgh.

William Johnson Clark Coulson [Retd. L] died on 5 April, aged 71.

Mr. Coulson, after training with the New-castle firm of Cackett, Burns, Dick and MacKellar, entered the employment of the Northumberland County Council and spent his entire working life there, retiring recently with the rank of Deputy County Architect. He was

## Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

## APPOINTMENTS

Mr R. H. Dolan [A] has been appointed staff architect to Messrs. Norman Sinclair (Properties) Ltd., 78 Uxbridge Road, Ealing, London, W.13, and will be pleased to receive trade catalogues, etc.

Paddington Borough Council have approved the designation of Mr. R. A. Jensen [F] as Borough Architect as well as Director of Housing, in view of the wider duties for which he is now responsible.

Mr. Raymond Walker [L] has accepted an appointment as staff architect to Messrs. Milners Safe Co. Ltd., 58 Holborn Viaduct, London, E.C.1 (CENtral 0041-5).

#### PRACTICES AND PARTNERSHIPS

The partnership of Messrs. Acworth and Montagu of 37 Gordon Square, W.C.1, has been dissolved, and the practice will be carried on by Mr. A. Montagu [F] at Brazier's End House, Chesham, Bucks.

Mr. James Allner [F] has retired and has transferred his practice to Mr. James G. Morley and Mr. James H. Bolton [A] who will continue the practice under the name of Allner, Morley and Bolton from the old address of 26 Parkstone Road, Poole, Dorset (Poole 182).

Mr. J. B. F. Cowper [F] has taken into partnership Mr. K. Melville Poole [A]. The firm will practise under the style of J. B. F. Cowper and Poole, 39 Gordon Square, W.C.1 (EUSton 5479).

**Mr. Alan P. Gainsford** [F] has begun practice at 29 The Square, Winchester (Winchester 5796), where he will be pleased to receive trade catalogues, etc.

Mr. A. Holt [4] has opened an office in Williams Deacons Chambers, Victoria Square, Cleveleys, where he will be pleased to receive trade catalogues, etc.

Mr. J. Lindsay Mair [A] has merged his practice with that of Messrs, V. P. Haughton and Son, Bank of New South Wales Chambers, 324 Lambton Quay, Wellington, New Zealand. The combined firms are practising under the style of Haughton, Son and Mair, at that address.

Mr. L. G. D. Ogden [L], practising as Cecil Ogden and Son, has now opened an additional office at 35 Castle Street, Hinckley, Leicestershire. The practice will also be continued from 1 Market Street, Lutterworth, Leicestershire, as before.

The partnership of Messrs. Ross, Harvey and Scott has been dissolved. Mr. D. J. A. Ross [F] has entered into partnership with Mr. Archibald M. Doak [A] and Mr. Alex. R. Whitelaw [A] and will continue to practise from 2 Clifton Street, Glasgow, C.3, under the style of Ross, Doak and Whitelaw.

Mr. R. Towning Hill [A] has removed to 27a Great George Street, Bristol, 1 (Bristol 26165), where with Mr. Lucas Mellinger, A.M.T.P.I. [A], he has taken into partnership Mr. Michael Hitchings. The firm will practise under the style of R. Towning Hill and Partners at this address and at 2 Nottingham Street, London, W.1 (WELbeck 3460), where Mr. Mellinger will be the resident partner.

Mr. Wells Coates, O.B.E. [F], and Miss Jaqueline Tyrwhitt have dissolved their association in this country by mutual consent. Mr. Wells Coates has taken into partnership Mr. Michael Lyell [A] and the firm will in future be known as Wells Coates and Michael Lyell with offices at 16/18 Yeomans Row, Brompton Road, London, S.W.3 (KENsington 9252/3). Mr. Michael Lyell will also be associated with Mr. Wells Coates in his Canadian practice under the style of Wells Coates Associates, with temporary offices at 717 Church Street, Toronto, Ontario, and later at Iroquois, Ontario.

Mr. H. M. Dale Wood [A] has been taken into partnership by Messrs. Edmund Kirby and Sons [AA] of 5 Cook Street, Liverpool, 2. The style of the firm remains unchanged.

#### CHANGES OF ADDRESS

Mr. R. J. Bickford [A] has left the employment of Messrs. Guinness, Dublin, and is now in Canadian Government service. His new address is 314 Currell Avenue, Westboro, Ottawa, Ontario, Canada.

The new address of Mr. C. F. Cawsey [4] is c/o District Architect, Ministry of Works, Wanganui, New Zealand.

Mr. D. Cheyne [A] has removed to 71 Balmoral Avenue, Belfast, N. Ireland.

The new address of Mr. S. R. Colomb [4] is c/o Mr. John H. Woodward, P.O. Box 50, Albany, Western Australia.

**Mr.** Geoffrey R. Gay [A] has changed his private address to 4 Spalding Way, Cambridge.

**Mr. George A. Goulty** [A] has removed to 13 Ravenscraig Road, New Southgate, London, N.11.

Mr. C. J. Henness [A] has removed from 16 Neale Close, N.2, to 92 Temple Fortune Lane, N.W.11 (SPEedwell 0751).

Messrs. Lowe and Barrie [LL] of 104 Commercial Street, Dundee, have removed to 65 Nethergate, Dundee.

Mr. Douglas H. Ross [A] has changed his home address to 13 Palace Green, Addington, Surrey.

Mr. and Mrs. H. Speakman [AA] have removed to Quay Steps, St. Peter Port, Guernsey, C.I. (Guernsey Central 2480).

Mr. David Steven [L], partner in the firm of Messrs. Montagu Evans and Son (head office, 21 Brunswick Square, W.C.1), announces that the Redhill branch office has been moved to 7a London Road (Redhill 4029).

Mr. James Whally [A] has changed his address to Nigel Building, 113 Main Street, Bulawayo, Southern Rhodesia (P.O. Box 1943), where he will be pleased to receive trade catalogues, etc.

## PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

For disposal, architect's practice with offices in Manchester and Macclesfield. Principally industrial building work. Box 51, c/o Secretary, R.I.B.A.

Associate (32) with substantial practice in Nairobi, Kenya, wishing to return to the U.K., seeks partnership, or position leading quickly thereto, in a progressive firm in the Midlands or south of England. Fair amount of capital available. Box 56, c/o Secretary, R.I.B.A.

Associate (43) requires partnership in south or south-west, very extensive experience; enthusiastic small, busy firm preferred; would consider junior partnership with prospects. Moderate capital. Box 57, c/o Secretary, R.I.B.A.

Associate wishes to dispose of expanding practice he has built up in small east Midland town. Gross income for past nine months a present financial year £1,600. Low overhead Box 58, c/o Secretary, R.I.B.A.

Associate (31), University and Public Schotraining, desires junior partnership or positial leading thereto in general practice, S. Lacashire area. Car owner and some capia available. Box 59, c/o Secretary, R.I.B.A.

Fellow, age 39, wishes to purchase substantipractice in London. Ample capital available Box 60, c/o Secretary, R.I.B.A.

Member with good general practice in sout east London wishes to dispose of it owing ill-health. A good opportunity for you member. Box 61, c/o Secretary, R.I.B.A.

Associate (35) experienced in all types of work seeks partnership or position leading thereto London or Home Counties. Some capital available. Box 63, c/o Secretary, R.I.B.A.

Young Associate wishes to purchase partne ship in London office. Capital available Box 64, c/o Secretary, R.I.B.A.

Licentiate wishes to dispose of small gener practice in small seaside town in souther England. Freehold offices and small flat avaable if required. Box 65, c/o Secretary, R.I.B.

#### WANTED

Member urgently requires drawing table of stand. Must be in good condition. Box 6 c/o Secretary, R.I.B.A.

### **MISCELLANEOUS**

Mr. R. Alan Lambourn [A], architect to the Kuwait Oil Co. Ltd., will be pleased to receive trade catalogues in duplicate c/o The Kuwait Oil Co. Ltd., Ahmadi, Kuwait, Persian Gul Where possible F.O.B. London prices and present delivery prospects are of interest.

The Royal Institute of British Architects, as a body, is not responsible for statements made of opinions expressed in the JOURNAL.



# The Architects' Special Motor Car Insurance at Lloyd's

The Architects' Benevolent Society's Insurance Committee in conjunction with a firm of Lloyd's Insurance Brokers have devised a Special Motor Car Policy for Architects. This policy and the special advantages to be gained from it are available only to members of the Royal Institute of British Architects and its Allied and Associated Societies.

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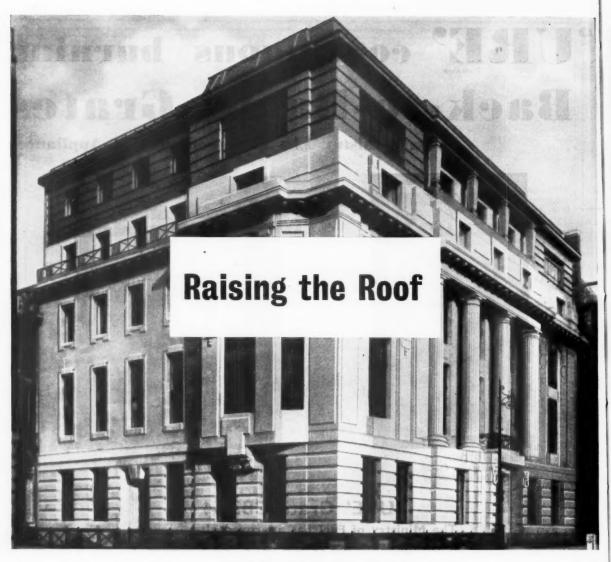
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# with 'Kynal'

In Wimpole Street, London, the Royal Society of Medicine building has grown 18 ft. during the past few months. The Society has enlarged its accommodation by adding an extra floor.

The first three floors are stone-faced, but to cover the brickwork of the new fourth floor it was decided to use 'Kynal' heavy-gauge aluminium alloy sheet and aluminium alloy extruded sections—5 tons of 'Kynal' in all, replacing

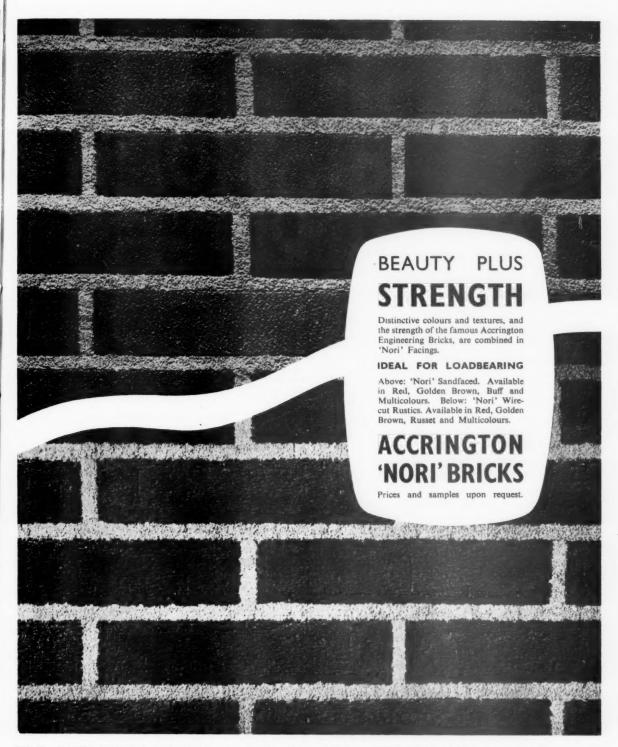
an estimated 71 tons of stone! The strong architectural character of the stone fabric has been ingeniously simulated, while the use of 'Kynal' has reduced transport and labour costs and speeded up erection. 'Kynal' is a versatile material for architects and builders.

All aluminium work was executed by J. Starkie Gardner Ltd., to the design of the late J. J. Joass, F.R.I.B.A., and Lesslie K. Watson, M.B.E., T.D., M.A., F.R.I.B.A., A.M.T.P.I. Messra. Trollope and Colls Ltd. were the general contractors. 'Kynal' M39/2 sheet and extrusions were used.

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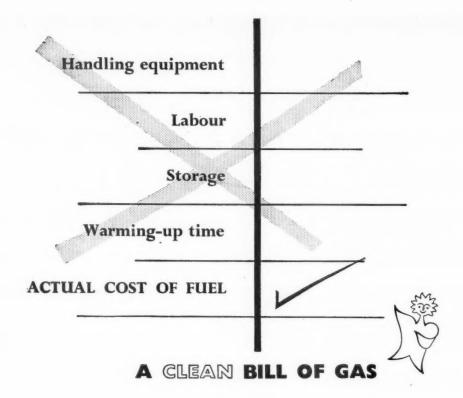
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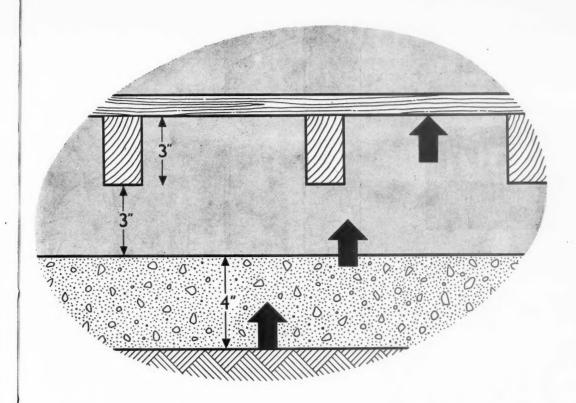
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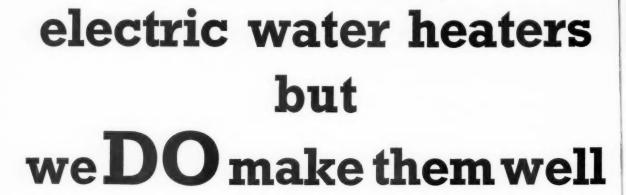


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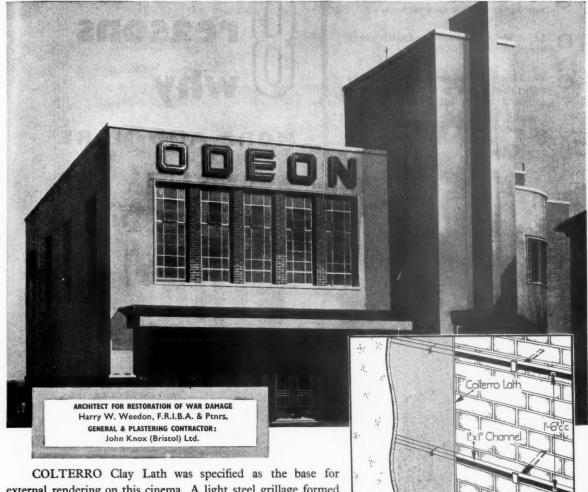
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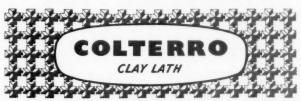
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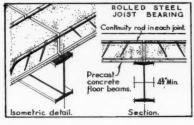
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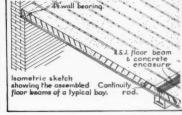
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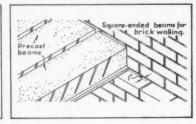
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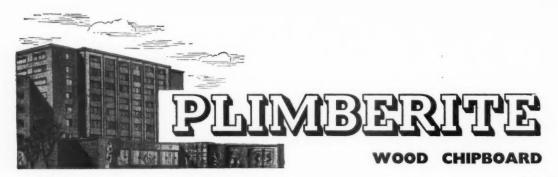




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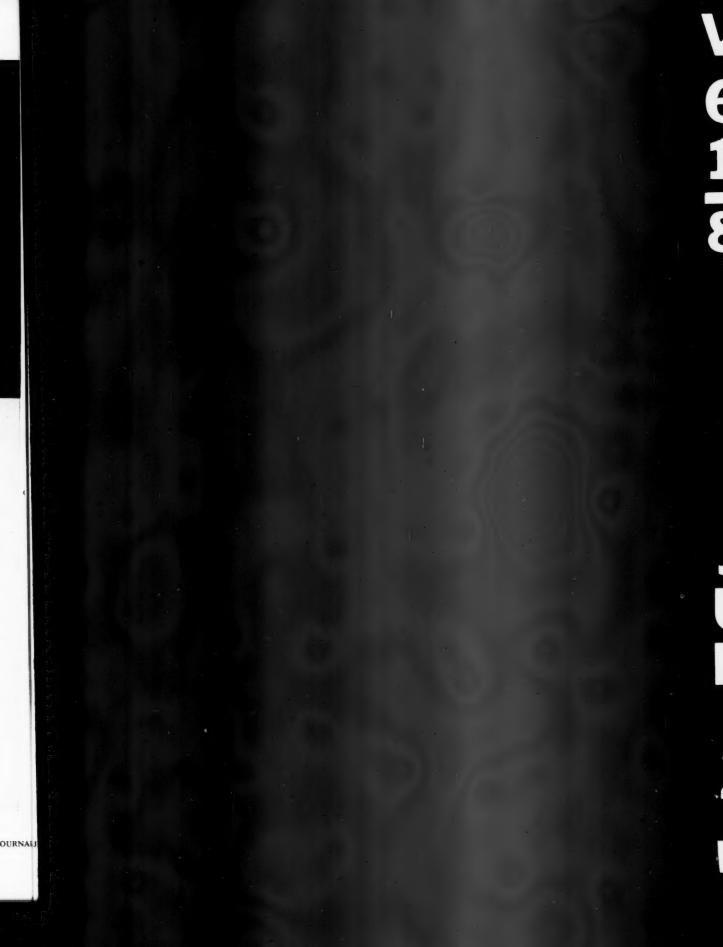
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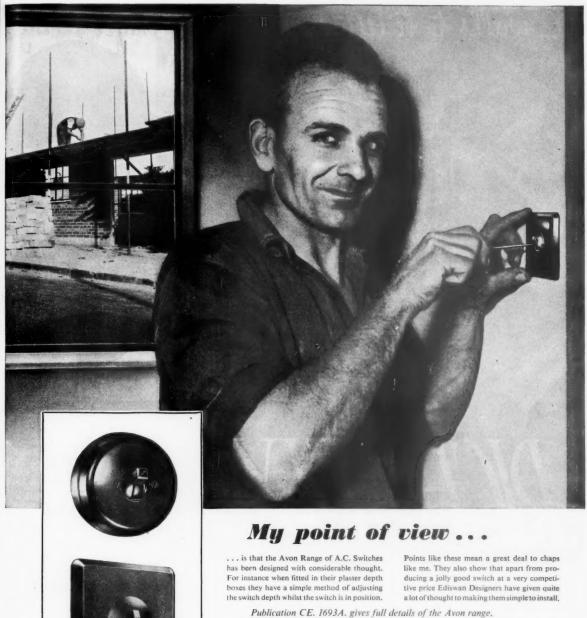
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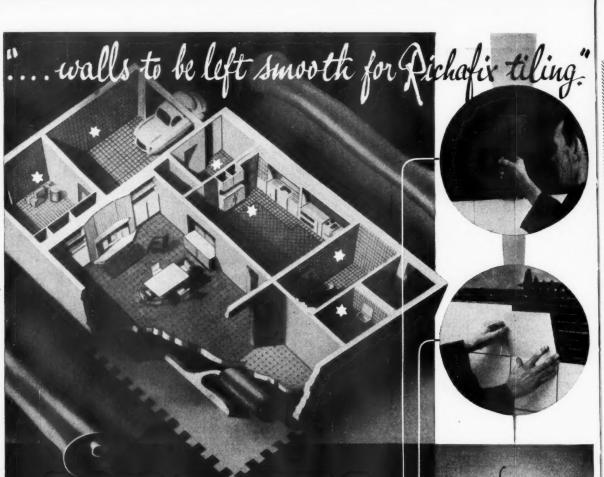
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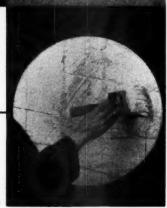
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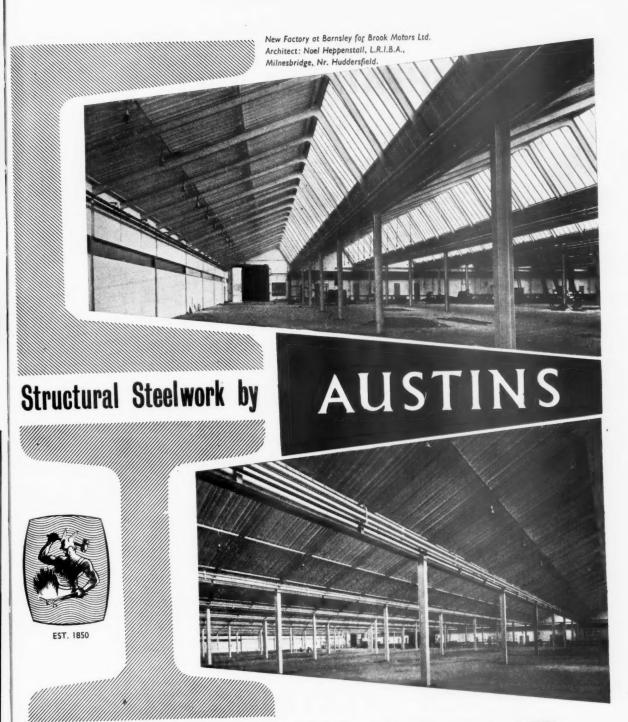
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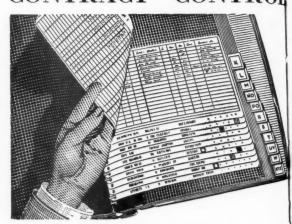
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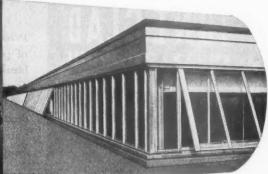
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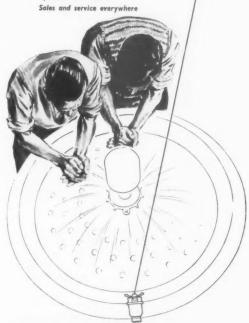
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In school or factory, barracks or ships; by shower or basin, fountain or trough, group washing needs thermostatic control and the best place to put it is at the point where the hot water meets the skin of the user.

Leonard thermostatic valves save heat and save water. Avoid risk of burns. Add to the joy of the user and the good looks of the washroom.

The Leonard valve system is by far the most widely used and is specified by most architects.

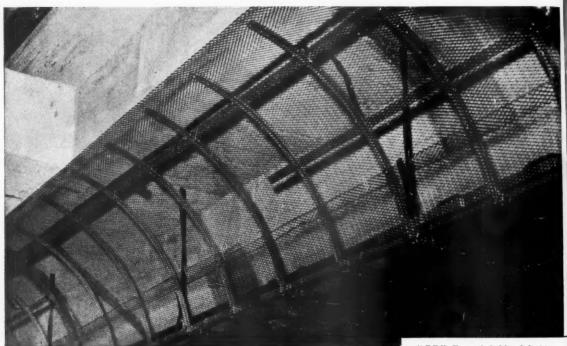




Write for leaflet No. 64/W

THERMOSTATIC MIXING VALVES

WALKER, CROSWELLER AND CO.LTD. CHELTENHAM



# "BB" Expanded Metal Lathing used in building an Exeter bank

"BB" Expanded Metal lathing background for suspended ceiling. Supplied and erected for new branch of Martins Bank, Exeter. Architects: Messrs. Lucas, Roberts & Brown. Contractors: Messrs. Soper & Ayres.

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Many important buildings constructed over the past fifty years incorporate Expanded Metal lathing and plaster for suspended ceilings, partitions, etc. These include: University College, Dublin; County Hall, London; Marischall College, Aberdeen; Royal Naval College, Dartmouth; Shell Mex House and Admiralty Arch, London.

#### THE PERFECT "KEY"

The most important requirement of a background is that it should provide an adequate "key" for the plaster. In each square foot of Expanded Metal lathing there are approximately 500 meshes, each mesh forming a "key" for the support of the plaster. No other background has this unique property.

### **'EXPAMET' ANGLE BEAD**



"Expamet" Angle Bead provides a rapid and effective alternative to forming arrises with plaster. The metal bead forms a straight, true nosing and the expanded metal wings ensure that the bead is securely anchored in the full thickness of the plaster on each side of the arris. Supplied in standard lengths of 7'6", 8'0", 8'6" and 9'0". Other lengths up to a maximum of 9'0" can be supplied specially.

#### EXTREMELY ADAPTABLE

Expanded Metal can be made to fit anywhere. Flat, arched, domed and vaulted surfaces can be formed with equal ease. There are no prefabrication problems and no difficulties over last-minute alterations.

### WILL LAST INDEFINITELY

The many ceilings and partitions constructed 50 years ago and still in good condition today prove that, under normal conditions, good plaster construction on Expanded Metal lathing will last indefinitely.

#### ANY WORRIES?

Perhaps you have a constructional problem that can be solved by using Expanded Metal. Certainly there's no harm in talking things over with us — it won't cost you anything. Please write or telephone for full information.



THE EXPANDED METAL COMPANY LTD.
Burwood House, Caxton Street, London, S.W.I. Tel: ABBey 3933

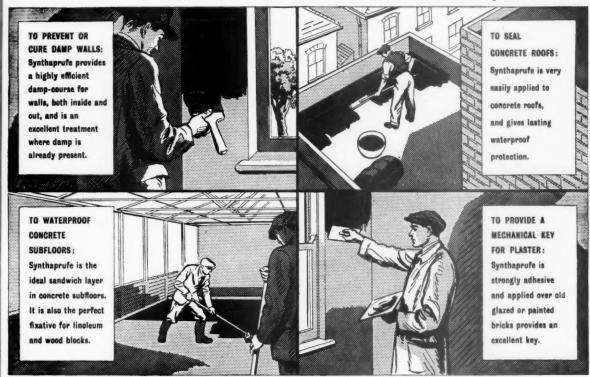
Stranton Works, West Hartlepool. Telephone: Hartlepools 2194

ALSO AT: ABERDEEN · BELFAST · BIRMINGHAM · CAMBRIDGE

CARDIFF · DUBLIN · EXETER · GLASGOW · LEEDS · MANCHESTER

# A brush-on waterproofing that contains rubber...

ELASTIC . ADHESIVE . IT MAKES AN IDEAL JOINTING



SYNTHAPRUFE is a waterproofing compound which can be applied cold by brush; its rubber content makes it strongly adhesive, and it sets quickly and forms a strong, elastic, moisture-proof film.

Most surfaces will take Synthaprufe concrete, plaster, brick, metal or timber -and it is equally effective on old or new buildings.

Synthaprufe is also highly effective as a vertical damp-course on either external or internal surfaces, and is most valuable for treating damp in existing walls.

When applied over old and shabby glazed brick or painted brick wall surfaces (e.g. in hospitals, institutions and factories) Synthaprufe provides an excellent mechanical key for plaster finishes. This process obviates the noise, discomfort and expense of hacking.

Applied to outer surfaces, Synthaprufe can be rendered with cement mortar. When applied to inside walls it may be finished in distemper or wall-paper, according to the manufacturer's instructions.

Synthaprufe offers the architect, builder, and engineer a waterproofing and jointing material of unusual efficiency and versatility, ready to use and easily applied.

### Some special uses

- Sealing concrete structures above and below ground-level, coolingtowers, etc.
- · Protecting concrete piles, steelwork, sewer-pipes, and joints, etc.
- · Waterproofing old asphalt, lead, zinc, corrugated iron, or felted roofs.

### SYNTHAPRUFE



Manufactured by the National Coal Board

Synthaprufe is a product of British Coal. Further details, and advice on any technical problem, will gladly be given on application to the National Coal Board, By Products, National Provincial Bank Buildings, Docks, Cardiff.

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FACTORIES. Factory at Darlington for Patons and Baldwins Ltd.

# POST-WAR BUILDINGS



SCHOOLS. Kells Secondary Modern School, Whitehaven, West Cumberland.



HOSPITALS. King George V Merchant Seaman's Memorial Hospital, Malta.



OFFICE BUILDINGS. Offices for the London, Cape and New York Trust (Pty.) Limited.



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